

**Current status and development potential of scalp healthcare in the COVID-19 blue era:
A critical review focused on Republic of Korea**

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Abstract

Aims: The purpose of this paper was to review the literature focusing on the scalp health of the Korean people in the COVID-19 Blue era and the possibility of significant development as an academic

Methods: This review paper is a literature review, and the method is a narrative review.

Results: It was found that the higher the awareness of hair loss, the better the scalp and hair management behavior. South Korea needs to develop systematic customized management methods, scalp programs and products due to the development of the COVID-19 era and the development of the 4th industry.

Conclusion: South Korea still needs to improve the expertise of trichologists and national social security insurance and research along with the growth of the beauty and healthcare service industry in the COVID-19 Blue era.

Keywords: COVID-19, Scalp health, Beauty and healthcare, Scalp hair growth, Trichologist, Alopecia of hair loss

1. Introduction

In the beauty and healthcare industry, which is growing even in the coronavirus disease-19 (COVID-19) blue era, the demand for professional manpower that cannot be replaced by AI is very high, and securing high-quality manpower through human interaction is an important factor in determining the quality of service¹. In modern society, as the lifestyle is more diversified and the standard of living is improved, interest in physical health and beauty is increasing, both inside and outside the body, and the desire to build a better image in health, cleanliness, beauty, and work life is increasing². In line with the cultural trend of well-being trends, the concept of healthy beauty is newly recognized, and for beautiful styling, there is a need to draw healthy hair and manage the scalp where the hair is rooted. Beyond the areas that have been concentrated on hair, it is time to promote true beauty through scalp management, and scalp management beyond simple hair management is already spreading by the leaders³. As we live in an era of rapid diversification, as the social structure becomes more complex amid the development and conditions of modern civilization, more and more people are suffering from various problems of scalp and hair caused by environmental pollution, excessive stress, and dietary changes⁴. The more advanced society is, the more important external beauty is recognized by modern people, regardless of gender and age, as well as young women⁵. However, in modern people's perception, the concept of external beauty is focused on the splendor of the part shown⁶. This may be a positive aspect in terms of aesthetics, but it may also be an inevitable cause of damage to the scalp and hair⁷. In modern society, problems such as study, employment, fierce competition, and uncertainty about the future have changed the perspective of hair loss, which was considered exclusive to middle-aged men, young people in their 20s, including children and adolescents, who were unlikely to be related to hair loss, are also incorporated into the hair loss population⁸. The hair

loss population is steadily increasing⁹.

2. Methods

This study is a literature review, and a narrative review approach has been used for this study. A total of 300-400 references were selected using representative journal search websites such as PubMed, Google Scholar, Scopus, and RISS, of which a total of 53 papers were selected in the final stage based on the recent of the last five years (2017–2021).

3. Results

3.1 .Market Status of Scalp Healthcare: Focused on Hair Loss Management in Republic of Korea

Starting with the establishment of British Svenson Korea in 1997 and WT-Method in 1998, the current scalp care market has grown to more than 2 trillion won due to popularization and generalization due to the increase in the number of people with hair loss, age, and women with hair loss^{10,11}. This scalp care market has grown to the extent that it has to allow access to the medical community, and is now growing to the point where it is not responsible for one aspect of the beauty industry, but is on par with the beauty industry¹². The total market size for hair loss prevention and hair growth in Korea was about 400 billion won in 2004 and 500 billion won in 2005, and the market is exploding as it grew to around 1 trillion won in 2006¹³. Currently, sales of products used for hair care are rapidly increasing to more than 1 trillion won a year, and with the increase of the hair loss population, the domestic hair loss market is expanding rapidly, and the hair loss-related industry has infiltrated during the growth period, The domestic hair loss market consists of hair care products, hair care services, hair loss treatments, wigs, and hair transplants, and the pharmaceutical and household goods industries have developed and released related products¹⁴. The size of the domestic hair loss market is growing rapidly, and amid the growing interest in hair loss and demand for scalp care, more

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and more experts and professional management centers are also helping consumers¹⁵. With the growth of the hair loss population and the release of related products, not only foreign companies but also domestic hair loss management stores are expanding their business to franchises. It is spreading to hospitals and oriental medicine clinics by opening clinics specializing in hair loss into niche markets. Various marketing strategies of companies that are offering hair loss management products are attracting attention, and large-scale sampling and word-of-mouth marketing are actively being developed from experience events through online communities as shown a Table 1¹⁶.

3.2. Several Main Causes and types of scalp and hair loss

The definition of hair loss refers to a condition in which hair in a normal area is lost due to various causes. Compared to the case of normal hair loss due to the normal hair growth cycle, the number of hair loss is higher than the number of new hair loss, and the amount of hair in the rest period is high, resulting in a decrease in the total number of hair¹⁷. It was reported that irregular lifestyles, meat-oriented meals, instant foods, greasy foods, and irregular lifestyles such as excessive sebum secretion were the causes of hair loss¹⁸. In addition, heredity and constitution, stress, diet and nutrition, diseases and drugs (pathological hair loss) were addressed. It is affected by hormonal abnormalities, environment, and aging The type of scalp is plain scalp, dry scalp, oily scalp, compound scalp, sensitive scalp, seborrhea scalp, pressure alopecia scalp, tinea capitis scalp, aging scalp, inflammation scalp, psoriasis scalp, steroid side effect scalp, and alopecia scalp¹⁹. Major inorganic component concentrations in scalp hair tended to increase up to age 25, and subjects over age 20 showed strong gender dependence on calcium and magnesium concentrations. More research is needed to understand the physiology of calcium and magnesium excretion through scalp hair²⁰. Male type alopecia is a disease that occurs only in men after puberty due to the action of androgen

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in people with genetic predisposition, but it also occurs in women, and although men and women differ, the mechanisms are the same²¹. Pumpkin seed oil (PSO) has been shown to block the action of 5-alpha reductase and to have an anti-androgen effect in mice. This randomized, placebo-controlled, double-blind study is designed to investigate the efficacy and resistance of PSOs for hair growth treatment in male patients with mild to moderate androgenic alopecia (AGA)²². The mechanism and inheritance of Androgenic alopecia (AGA) are not yet known. Several clinical studies have shown that predisposition to AGA is influenced by various paternal and/or maternal genetic factors. Previous studies did not address the association of family history and AGA based on hair loss patterns. Family factors influencing the type of AGA differ depending on the type of BASP classification, male and female²³.

Male type alopecia is more than 50% of adult men in white people and 10-20% lower in Korean than white people²⁴. In the case of male-type alopecia, the hair follicles become smaller, and various types of hair with different diameters are observed in the alopecia shown as a Table 2²⁵. The scalp care market is growing rapidly and studies on sensitive scalp-related factors are being conducted in many countries. However, to the best of our knowledge, there are no previous studies examining the factors that cause sensitive scalp in Korean women. Therefore, the purpose of our study is to set objective criteria for sensitive scalp, investigate the factors that cause this condition, and determine the percentage of sensitive scalp in Korean women. This study can help understand the sensitive scalp characteristics of Korean women and identify the factors that cause sensitive scalp²⁶. They investigated the correlation between the degree of temporal hair loss and other areas of scalp hair loss in Korean female type hair loss patients. A total of 109 women with female-type hair loss were enrolled in this retrospective analysis. The temporal involvement in this study is evident in female hair loss. We propose that temporal involvement should be added to the pattern hair loss

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classification, especially the BASP classification²⁷. As a result of applying scalp massage for 15 and 25 minutes to female office workers, positive effects were observed on stress hormones, blood pressure, and heart rate. Therefore, scalp massage can be used for stress control without any spatial or temporal limitations²⁸. Application of ADSC-CE local solutions increases both hair density and thickness while maintaining adequate treatment safety. It suggests that it has enormous potential as an alternative treatment strategy for hair re-growth in AGA patients²⁹. Circular alopecia is an autoimmune disease characterized by rapid hair loss of the scalp, eyebrows, and eyelashes, and is limited in treatment. Baricitinib, an oral selective reversible inhibitor of Janus kinases 1 and 2, may interfere with cytokine signaling associated with the pathogenesis of circular alopecia. Oral varicitinib outperformed placebo in terms of hair re-growth in Week 36 in two phase 3 trials of patients with severe circular alopecia. Longer tests are required to assess the efficacy and safety of varicitinib against circular alopecia³⁰. Our results suggest that a dermatologist should consider AANS when diagnosing hair loss nodules in the scalp³¹. Skin papilla (DP) regulates hair follicle growth and circulation. Cultured DP cells are useful for role studies related to hair growth and regeneration. However, culturing human DP cells is boring and difficult. In addition, cultured DP cells have a relatively short replication life, requiring immortalized human DP cell lines. KNU cell lines established in this study are potentially useful sources for hair research³². Necrotizing fasciitis on the face and scalp is a serious bacterial infection that, if not properly managed, can lead to prolonged illness or death. Accurate diagnosis, patient education, early antibiotic treatment and timely surgery are important to control infection and prevent irreparable damage³³. In the past, scalp problems such as hair loss, dandruff, and itching have occurred mainly among the middle-aged people (Table 3)³⁴. In modern times, scalp damage is frequently seen even in young age groups who are interested in external beauty shown as a Table 4³⁵.

3.3. How to take care of scalp and hair

21 century is an era of environment and clinics, and the need for healthy scalp and hair care is required by using various devices such as new scalp and hair diagnostic devices³⁶. Scalp and hair contain all psychological, interpersonal, economic, health, and aesthetic factors, and it is important to understand the scalp and hair condition well to reduce the problem of scalp and hair loss from physical, chemical, environmental, physiological, and pathological factors³⁷. Beautiful and healthy hair is another element of beauty that creates human personality, appearance confidence, and various moods, but damage to the scalp or severe hair loss is restricted from producing hairstyles through changes in shape, texture, and color, so it should be recognized that beautiful hair originates from healthy scalp³⁸. Scalp care removes waste that can interfere with scalp breathing or cause physiological decline. By improving the scalp problem caused by dead skin cells and sebum, it is possible to prevent hair loss and make the scalp healthy³⁹. Self-beauty and healthcare homecare is also on the rise⁴⁰, but many people with hair loss are highly aware of the need for scalp and hair care, and the demand for services is also high⁴¹. Taking care of your scalp and hair loss helps prevent and manage hair loss or dandruff that falls out excessively. A healthy scalp plays an important role in hair growth and keeps hair beautiful⁴². Facilitates blood circulation through massages applied during care, As a result, it can help prevent and prevent deterioration of problematic scalp and hair loss⁴³. Modern people are suffering from increased scalp and hair loss due to rapid stress, poor eating habits, drinking and smoking, irregular sleep hours, and an imbalance between diet and nutrition, Accordingly, interest in product use and scalp and hair loss management is increasing (Table 6)⁴⁴. The components of hair loss prevention agents are less harmful to the human body than the chemical components such as surfactants The development of hair loss prevention agents containing natural products containing small amounts of plants or fruits

that have scalp protection is actively being promoted⁴⁵. Patents related to hair loss prevention drugs containing natural products increased six-fold from only six cases between 1994 and 1995 to 35 cases between 2002 and 2003. As natural materials, ginseng, white mulberry, black beans, ogafi, and gugagi are widely used, and recently, research using charcoal and loess is being conducted shown as a Table 5⁴⁶.

3.4. Development potential of scalp healthcare as an academic research subject

Modern people are not only emphasizing beautiful appearance due to the global socio-cultural aspect of well-being, but also focusing more attention on healthy beauty⁴⁷. The higher the recognition of hair loss, the better the scalp and hair management behavior, and products and management methods suitable for various age groups have been developed. The market is also exploding due to the increase in the number of people with hair loss. Measures such as systematic and effective customized management methods and product use will be needed to improve scalp and hair conditions, lifestyle habits, and eating habits. Scalp specialist centers and beauty salons also show the need to incorporate these recognition factors into activation of scalp care services, scalp and hair program development, and product development marketing⁴⁸. It is true that the beginning of scalp management started as a way to prepare for hair loss rather than managing the scalp. As a result, the efficacy and effect of hair loss were emphasized. It is also true that the exaggerated expression that hair loss improves with marketing has caused confusion that hair loss is likely to be cured. It is the basis for disputes because there is no clear legal basis to resolve the expansion of the work area of the medical community and the ambiguity of the overlapping work areas. In a way that companies can develop their respective fields through efficient classification of tasks. It is solved through the division of duties⁴⁹. What is necessary for the development of scalp and hair management is that as consumers' needs develop more and more, professional and

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independent program development and diversified care should be prepared⁵⁰. In Korea, there are several associations related to scalp and hair. The Korea Scalp Hair Society, which is composed of dermatologists, the Korea Oriental Scalp Management Association, composed of oriental medical doctors, Korea Scalp and Hair Professional Association, focusing on beauty professors, Korea Scalp Health Association, Korea Scalp Growth Research Association, Korea Association of Masked Skin Experts, Korea Scalp Health Association, Korea Scalp and Beauty Association, etc. Outside the country, scalp and hair were studied in England in 1902. In 1912, a school for scalp and hair experts was established and is expanding around the world, including Europe. Recently, various associations related to scalp and hair have been created. As an association, the International Hair Care Association and the Scalp Hair Association have member's worldwide shown as a Table 7⁵¹.

4. Conclusions

Until now, research related to professional managers has been mainly conducted in the fields of medical care and nursing, such as nurses and caregivers. With the growth of the beauty and healthcare service industry, a trichologist appeared according to the specialization and subdivision of work. To improve the research and the expertise of a trichologist It will be necessary to acquire expertise in product efficacy and effectiveness, and to provide service education according to market segmentation and various customer preferences, develop consumer participation programs, and promote the national technical qualification system⁵². It can be said that health is not a matter for individuals alone, but for all societies and countries to be jointly responsible, and the contents of the health promotion project include all activities necessary for maintaining national health⁵³. In Korea, more than 15 million people out of 50 million people have direct and indirect experiences of hair loss. As a state-responsible social security insurance, policy research is also needed, and more clinical

development research is We should not only use side effects of medicines, but also strive to develop safe and efficient medicines. It is believed that it is necessary to classify and specialize in the study of "hair loss" in detail in the department of dermatology. It is believed that it has come to understand and practice the fundamental cause of hair loss by developing it not only in general dermatology but also as a specialized and detailed study.

CONFLICT OF INTERESTS

The authors of this manuscript do not declare conflicts of interest.

ETHICAL STATEMENT

The conducted literature review did not require the agreement of the agreement of the bioethics committee.

DATA AVAILABILITY STATEMENT

Data sharing not applicable - no new data generated.

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Table 1. Market Status of Scalp Health Care: Market Status of Scalp and Hair Loss Management in Republic of Korea

Author	Kim Ji-hyeon. (2005)	Lee ji young. (2006)	Kim Soo-mi. (2007)	Sam Sook Seo. (2009)	Lee jung ran, and Lim eun jin. (2009)	M. Kim, S. Jung, and S. Shim. (2012)	Ji Hoon Cho. (2013)
Title	A Study of Customer Satisfaction on Scalp and Hair Care Shop and Development Plan	Analysis on scalp & hair care service market and the prospect for preference of the clients	A Study of Improvement of Competitiveness of Scalp and Hair Loss Product Brand for Beauty Salon Only	A Study on the Effect of Service Quality on Customer Satisfaction and Revisit Intention. Focusing on the scalp care room	Analysis and Forecast of the Domestic Market for Hair loss	The research about Scalp treatments by self-recognition of adult's losing hair	Research Paper : A Study on Segregation of Duties about Scalp & Hair Care Market
Discussion	It is important to identify and recognize customers' needs through sufficient consultation before management by understanding customers' prior expectations.	Many problems are caused by stress and irregular living conditions, and the problem is actively solved. Most of them are limited to hair loss products.	Consumers put the quality of the manager first when choosing the scalp hair loss management service	Considering customer satisfaction, service quality will directly affect the intention to revisit. It was found that it had an indirect effect through customer satisfaction.	The hair loss market is being subdivided into hair loss management products, management offices, devices and medical procedures, and related new products are being developed.	The higher the self-awareness of hair loss in adult men and women, the better the scalp management behavior. It was found that self-awareness of hair loss was closely related to scalp management.	Work allocation of the scalp & hair care market is a major factor that can resolve disputes with the medical community.
Journal name	Journal of Investigative Cosmetology	Chung-Ang University Graduate School of Medicine and Food Master's Thesis	Graduate School of Sookmyung Women's University, master's thesis	Yongin University Graduate School of Business Master's thesis	Korean journal of aesthetics and cosmetics society	<i>Journal of the Korea Convergence Society</i>	Journal of the Korean Society of Cosmetology
References	14	11	13	10	16	15	12

Table 2. Causes and types of scalp and hair loss

Author	Spering, L.C. and Heimer, W.L. (1993)	Olsen, E.A. (1994)	Olsen, E.A. (1994)	Lee WS, Oh Y, Ji JH, Park JK, Kim DW, Sim WY, Kim HO, Hwang SW, Yoon TY, Kye YC, Choi GS, Kim MB, Huh CH, Ro BI, Kim SJ, Kim JH, Lee Y. (2011)	Kwon yong seon. (2012)	Bae jae hwan. (2013)
Title	Androgen biology as a basis for the diagnosis and treatment of androgenic disorders in women.	Androgenetic alopecia In: Olsen E. A. ets. Disorders of hair growth	Androgenetic alopecia In: Olsen E. A. ets. Disorders of hair growth	Analysis of familial factors using the basic and specific (BASP) classification in Korean patients with androgenetic alopecia	The Effect of College Women's Daily Habits on Condition of Scalp and Hair-Focused on Difference between the Esthetics-major and the Bonesthetics-Major-	Design and Development for Scalp hair loss Serious Contents
Discussion	In the case of male alopecia, the follicles become smaller. In alopecia, various types of hair with different diameters are observed.	Male type alopecia is a disease that occurs only in men after puberty due to the action of androgen in people with genetic predisposition, but it also occurs in women. Men and women are different, but the mechanism is the same.	Male type alopecia has more than 50% white percentage of adult men. Koreans are 10 to 20 percent lower than whites.	Basic type hair loss had a higher degree of inheritance on the paternal side regardless of a specific type.	Beauty major and general major are both eating habits and scalp. Hair condition, diet and diet practice, diet and stress, stress and scalp. It was found that there was a correlation between hair conditions.	Compared to the case of normal hair loss due to the normal hair growth cycle, the number of drops is greater than the number of new hair loss. The amount of hair during the rest period is large, and as a result, the total number of hair decreases
Journal name	I. J. Am. Acad. Dermatol	New York. McGraw-Hill Inc	New York. McGraw-Hill Inc	J Am Acad Dermatol	Domestic Master's Thesis Hansung University	Korean Society For Computer Game
References	25	21	24	23	18	17

Table 3. Causes and types of scalp and hair loss

Author	Bae jae hwan. (2013)	Cho YH, Lee SY, Jeong DW, Choi EJ, Kim YJ, Lee JG, Yi YH, Cha HS. (2014)	JE, Park IH, Kim DH, Park SH, Kang JN, Kim H, Seo JK. (2015)	Chang-Hyun Kim and Ok-Lyun Par. (2015)	Kim IH, Kim TY, Ko YW. (2016)	MH, Yang JM, Won GH, Kim MK, Kim JC, Sung YK. (2018)	Ha BJ, Lee GY, Cho IH, Park S. (2019)
Title	Design and Development for Scalp hair loss Serious Contents	Effect of pumpkin seed oil on hair growth in men with androgenetic alopecia: a randomized, double-blind, placebo-controlled trial	Alopecic and Aseptic Nodules of the Scalp/Pseudocyst of the Scalp: Clinicopathological and Therapeutic Analyses in 11 Korean Patients.	The Difference Analysis on the Scalp-Hair Attitude and Scalp-Hair Care Behavior by Type of Women's Appearance Concern.	The effect of a scalp massage on stress hormone, blood pressure, and heart rate of healthy female	Establishment and characterization of five immortalized human scalp dermal papilla cell lines.	Age- and sex-dependence of five major elements in the development of human scalp hair
Discussion	Compared to the case of normal hair loss due to the normal hair growth cycle, the number of drops is greater than the number of new hair loss. The amount of hair during the rest period is large, and as a result, the total number of hair decreases	After 24 weeks of treatment, the self-evaluation improvement score and self-evaluation satisfaction score were higher in the PSO administration group than in the placebo group (P=0.013, 0.003)	Eight patients showed granulomatous infiltration. All patients were treated with short-term antibiotics and steroid injections in lesions.	It was found that depending on the type of appearance interest of women, it affects scalp and hair attitudes and behaviors.	Scalp massage can be used for stress control without any space or time limit	These cell lines exhibited early subsequence forms and maintained responses to androgen, Wnt, and BMP. These cell lines expressed DP markers and DP signature genes..	. The concentration of major inorganic components of scalp hair tended to increase until the age of 25. Subjects over the age of 20 showed strong gender dependence on calcium and magnesium concentrations
Journal name	Korean Society For Computer Game	Evid Based Complement Alternat Med	Dermatology.	Journal of the Korean Society of Beauty	J Phys Ther Sci	Biochem Biophys Res Commun.	Biomater Res
References	19	22	31	34	28	32	20

Table 4. Causes and types of scalp and hair loss

Author	Park KH, Kim J, Oh B, Lee E, Hwang-Bo J, Ha J. (2019)	B. S. Shin. (2019)	Heo JH, Yeom SD, Byun JW, Shin J, Choi GS. (2020)	Tak YJ, Lee SY, Cho AR, Kim YS. (2020)	Amponsah EK, Sodnom-Ish B, Nguyen TTH, Kim SM. (2021).	King B, Ohyama M, Kwon O, Zlotogorski A, Ko J, Mesinkovska NA, Hordinsky M, Dutronc Y, Wu WS, McCollam J, Chiasserini C, Yu G, Stanley S, Holzwarth K, DeLozier AM, Sinclair R. (2022)
Title	Evaluation of factors triggering sensitive scalp in Korean adult women	Scalp & Hair Perception and Care Patterns of College Women Majoring in beauty and Other Fields	Significant relationship between temporal hair loss and other scalp areas in female pattern hair loss	A randomized, double-blind, vehicle-controlled clinical study of hair regeneration using adipose-derived stem cell constituent extract in androgenetic alopecia	Odontogenic Necrotizing Fasciitis of Face and Scalp.	BRAVE-AA Investigators. Two Phase 3 Trials of Baricitinib for Alopecia Areata
Discussion	The average body temperature of the sensitive scalp (SS) group was significantly higher than that of the non-sensitive scalp (NS) group.		The average hair density was the lowest in the temporal region among all scalp regions. Time involvement is evident in feminine hair loss	The difference between groups of changes in the number of hair remained significant until the 16th week. The overall change was 28.1% to 7.1%, respectively	It is necrotizing fasciitis on the face and scalp caused by oral infection, and if proper treatment is not performed early in the disease, it can affect any part of the body.	Oral varicitinib outperformed placebo in terms of hair re-growth in Week 36 in two phase 3 trials of patients with severe circular alopecia.
Journal name	Skin Res Technol	J. kor. Soc .B&A	J Dermatol	Stem Cells Transl Med	J Craniofac Surg.	N Engl J Med
References	26	35	27	29	33	30

Table 5. How to take care of scalp and hair

Author	Kim Jeong-hee. (2001)	Park Sang-hee. (2003)	Kim Seong-ho. (2004)	Jeon-Jeong Ae. (2007)	Kwan Ok Kim, and Sung Nam Kim. (2011)	Ji Yeon Jang. (2013)
Title	The relationship between scalp care behavior and hair characteristics and hairstyles of college	Hair loss prevention and hair growth related cosmetic patent trend	Inventions in everyday life	A Study on Perception and State of Scalp & Hair Care among College Students in Beauty-Related Departments	The effect of self-awareness of hair loss factors on health care, scalp and hair care	Correlation according to the perception of scalp and hair care and perceived symptoms of hair loss among college students
Discussion	The correlation between scalp management behavior and stress caused by dandruff and hair loss was significantly higher in male students than in the case of hair loss (p<0.001).	The development of hair loss prevention agents is being actively promoted, which contain natural products with relatively few side effects on the human body and scalp protection than chemical components such as surfactants.	As natural materials, ginseng, white mulberry, black beans, ogafi, and gugi are widely used, and recently, research using charcoal and loess is being conducted.	It was found that strong pressure, excessive shampoo, and excessive combing were recognized as the cause of scalp hair damage when sleeping or going out while the hair was wet.	It was confirmed that the degree of recognition of hair loss factors had a significant effect on health care and scalp and hair management	The importance of scalp and hair management was high, and the higher the health status and health interest, the more important the scalp and hair management is.
Journal name	Chosun University Graduate School of Environmental Health Master's Thesis.	Health Industry Technology Trends	patent office	Graduate School of Distance Learning of Sookmyung Women's University	Journal of the Korean Society for Design	Journal of the Korean Society for Design Culture
References	36	45	46	38	43	42

Table 6. How to take care of scalp and hair

Author	Song, J. B., & Kim, J. S. (2017)	Im soon yeo, and Jeon hyun jin. (2017)	Song Jeong-bin. (2018)	Song, I. Y. (2020)	Lee Seo-hee, Im Yeon-sil, and Jeon Jeon-jeong. (2021)
Title	A Study on the Characteristics of Hair and Scalp care by Self-diagnosis in Women	Recognition and behavior of scalp and hair loss management according to the characteristics of college students	A study on the stage of change in women's scalp and hair care behavior based on a pan-theoretic model	Influence of Appearance Concern and Self-Esteem on Scalp Care Behaviors in Men	A study on differences in scalp health beliefs and scalp care behaviors according to the lifestyles of female college students
Discussion	High cleaning power is recommended for oily scalp with a lot of secretion, and low cleaning power is recommended for dry scalp because using too high cleaning power will deprive the scalp of oil and moisture.	As the perception of scalp and hair loss management is high, interest in scalp hair and good eating habits for scalp are also important.	By applying the theoretical model, it resulted in valid results that could effectively explain behavioral changes such as habits of scalp and hair management.	The higher the interest in appearance, the higher the scalp care behavior. It was found that the higher the appearance interest and self-esteem, the higher the scalp management behavior.	As a result of the difference in scalp management behavior according to lifestyle, social orientation, trend-seeking orientation, and economic orientation were high in order.
Journal name	Korea Beauty Industry Association Beauty Industry Research	Journal of Korean Society of Aesthetic Art Seoul	Venture University. Convergence Industry Ph.D. thesis	Graduate School of Sookmyung Women's University, Master's degree in Korea	Journal of Convergence for Information Technology
References	40	44	37	41	39

Table 7. Academic research and development potential of scalp health care

Author	Ji-hyun Kin. (2005)	Jang Junsu. (2011)	Jung-Lea, Park Young-Hei, Park Soo-Kyoung, Song Mi-Kyung, Seol Eun-Hee, Lee Hee Kyung, Hong ji-Eun. (2013)	Ji-Hoon Cho and Seul Ki Choi. (2016)	Kim Ji-hyun. (2021)
Title	A Study on the Customer Satisfaction of the Scalp & Hair Care Center and Development Plan	A Study on the Media-Lookism in Korea : Focusing on TV Drama Exposure and Cosmetic Formality	A Study on How to Manage Scalp and Hairs through Five Senses Satisfaction	A Study on Segregation of Duties about Scalp & Hair Care Market	A study on management behavior according to the scalp and hair condition of adult men and women, lifestyle, eating habits, and perception of hair loss
Discussion	The field of customer management through systematic marketing that can analyze customer dissatisfaction factors and turn them into satisfaction continues to be studied.It will have to be developed	Media education can be a useful way for the recipient to have a realistic perception of the body in aesthetic experiences through the media.	Nature and Human beings are complementary and balance yin and yang equilibrium without loss of is considered health There is.	The scalp & hair care market in the segregation of duties can resolve the dispute possession of medical and beauty circles.	It was found that the higher the awareness of hair loss, the better the scalp and hair management behavior.
Journal name	Journal of Investigative Cosmetology	Domestic doctoral thesis Chung-Ang University Graduate School	Journal of the International Society of Health and Beauty	Jounal of The Korean Society of cosmetology	Journal of the International Society for Health and Beauty
References	51	47	50	49	48