Psychosocial aspects of androgenetic alopecia

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cover: The cover shows a painting by Caspar Russel called "Man from behind". This painting was presented on a exposition of mentally disabled artists in Laren 1992.

Psychosocial aspects of androgenetic alopecia

Psychosociale aspecten van alopecia androgenetica

Proefschrift

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"Denken, dat werkt vroegtijdige kaalheid in de hand, door verdroging van de schedelhuid. Ik denk bijna nooit, als het maar even kan".

Citaat van Gerard Reve

For Arja and Sacha

Contents

Preface

During investigations into the treatment of serious hypertension with minoxidil in 1971, C.A. Chidsey observed that several of his patients developed hirsutism (abnormal hairiness). He suspected that this was caused by minoxidil. In subsequent experimental studies based on this observation, regrowth of hair was observed after local administration of minoxidil. As a result, The Upjohn Company developed a protocol for local administration of minoxidil for stimulating hair regrowth in baldness. In 1976, following the experimental studies in animals, several international studies were initiated to investigate the stimulating effects of minoxidil for restoring hair growth in humans. Since 1981, 2200 patients at 27 centres in the USA and later in several other countries including the Netherlands were investigated in order to establish the efficacy and safety of 2% minoxidil lotion for local treatment of androgenetic alopecia.
In September 1986, such a clinical trial was also initiated by Meulenberg and Stolz (supervisor) at the Department of Dermato-Venereology of the University Hospital Rotterdam-Dijkzigt. During the preliminary phase of this trial, many of the male volunteers who wanted to participate made it known that they had psychological problems due to their baldness. Frequently, their feelings were expressed as " It is a life-sized problem for me. I suffer from an inferiority complex and have an intense feeling of shame".
Therefore, the expertise available at the Department of Medical Psychology and Psychotherapy of the Erasmus University was called upon and the discussions that followed formed the basis for the investigations described in this thesis.
The investigations* (a co-operation between the Department of Dermato-Venereology of the University Hospital Rotterdam-Dijkzigt and the Medical Psychology & Psychotherapy Department, Faculty of Medicine, Erasmus University, Rotterdam) were aimed at establishing the psychosocial problems associated with androgenetic alopecia. The Department of Dermatology of the Free University in Amsterdam also co-operated in these investigations at a later stage.
This thesis is an indirect spinoff of these investigations and consists of several publications which are preceded by an introductory Chapter in which the biological, social and psychological meanings of hair are described. In the last chapter of the thesis, the relevance of the results is discussed in a broad context.

In the introductory Chapter, attention is focused on the literature and theories concerning hair loss. In Chapter 2, the psychological characteristics of random samples of men with and without androgenetic alopecia obtained from the general population are compared. Investigations into the psychological characteristics of a group of men with androgenetic alopecia who participated in a clinical trial to establish the effect of 2% minoxidil are described in Chapter 3. Chapter 4 is devoted to studies into the psychological characteristics and the specific problems of hair loss in women with androgenetic alopecia. Their characteristics and problems were compared with those in a group of women with hidden dermatological afflictions and also with those in a group of men with androgenetic alopecia. Subsequent additional investigations into the characteristics and the level of psychological problems in women with androgenetic alopecia and their adaptation to their hair loss are reported in Chapter 5. Finally, the results of the investigations are summarized and generally discussed in Chapter 6.

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CHAPTER 1

A historical review on the various aspects of hair and hair loss

1.1 Introduction

Male pattern baldness or androgenetic alopecia in men is very common. It accounts for more than 90% of all cases of alopecia of the scalp in men (1). It has the highest prevalence [45%] in the Caucasian race and the lowest prevalence [15%] in the Mongoloid race (2). Its prevalence in pre- and post-menopausal women is about 13% and 37% respectively (3).

In recent years, the media have paid increasing attention to the problem of hair loss. The main reason for this has been the introduction of minoxidil for restoring hair growth.

Many men and women with abnormal hair loss consult their general practitioner or a dermatologist. An unknown number is also urged to seek advice because of persistent complaints.

Taking into account the high incidence of androgenetic alopecia in men and the somewhat lower incidence in women, relatively few scientific studies on the psychosocial aspects of hair loss are available. Although the general knowledge on androgenetic alopecia is considerable, most of it has come from popular literature and only a few scientific studies are available. The same is also true of our knowledge regarding the psychological problems associated with androgenetic alopecia. Most of the knowledge has come from anecdotal reports in popular literature.

A historical review on the various aspects of hair and hair loss and a survey of the relevant literature will follow.

1.2 The adaptive and functional aspects of hair in man

According to the theory of evolution, man has evolved from a hairy being into a "naked ape". The evolution into humanoid form has been estimated to have occurred somewhere between five and eight million years ago when they diverged from the apes to which they had been closely related. At the same time, several other changes also occurred, the most important of them being the ability to

move in an upright position and a increased content of the brain. In addition, man also lost most of his hairy coat during the course of time. One of the main functions of hair on the body of our ancestors could have been to protect them from the cold. This function was largely lost when major climatic changes occurred. Even today, hair in man still has a limited number of functions. For example, the eyelashes protect the eyes against perspiration and dust. Armpit- and pubic hairs protect the skin against irritations caused by movement of the limbs. Hair in the nose and in the auditory canal of the ears keep dust at bay. Finally, hair on the scalp protects the skin against ultraviolet radiation and ensures that it does not burn in the summer and chill in the winter.

In the popular literature, Hardy's theory has been used to explain the relative baldness in man (4). The starting point of his theory was that the evolution of man had occurred via an aquatic phase. This "Waterman Theory" stated that "ancestors" of man went through a phase during which they spent a great deal of time in water. The explanation for the loss of hair would then be that a hairy coat would be particularly clumsy in water.

Hair on the scalp could also have had a social function. It has been observed that apes spend considerable time grooming each other. This activity serves to strengthen the mutual friendly bonds. Perhaps, human hair still has this function: one lovingly caresses the hair and cares for it well with the objective of making a positive impression in relations.

1.3 History of the social and symbolic meaning of hair

The first rough anatomical sketch and description of human head was probably made on the 4000 years old Ebers papyrus (5) which also contained numerous entries on the cosmetic ornaments for the head.

It appears that all ornaments concerning the head received much attention at that time. According to Herodotus (484-425 B.C.), one of the oldest medical specializations was the Egyptian "doctor of the head" who specialized in diseases that were associated with the head (6). According to these descriptions, baldness was a serious illness. The ancient Egyptians attributed many more causes to baldness than those acknowledged at present. Numerous therapies for a disease called "nesseq" in ancient Egyptian are not only described in the Ebers papyrus

but also in those translated by, among others, Smith (7) and Hearst (8). At present, it is generally accepted that they referred to alopecia areata. The treatment of this affliction and many other diseases of the scalp was accompanied by carefully conducted exorcisms. These diseases of hair where probably one of the reasons for the use of wigs and artificial hair during that period. At the same time, it was not uncommon for ancient Egyptians to have their scalp completely shaven so that they could wear wigs which were specially made for them for particular occasions. These wigs were made either from human hair or from plant fibres that were kept in place with beeswax (9).

Frequently, hair was more than any other part of the body the subject of superstition and sorcery. The ancient Egyptians for instance believed that cut hair should be carefully hidden to prevent the malevolent individuals from influencing the spirit of the owner through sorcery and magical formulas. Therefore, cut hair was ceremonially buried accompanied by the uttering of special phrases.

In the Roman period, wigs which were made from the hair of the conquered folk were highly popular with Roman women. By this, not only the cosmetic aspect, but also the symbolic aspect was expressed, namely the scalp of the conquered foe as a symbol of power. Scalping has been a custom of traditional importance. It served as a sign of personal bravery and a scalp was a desired trophy of war. Historically, Herodotus was probably the first to describe scalping (5). Scalping is also mentioned in the second book of the Maccabean: the records of the war between the Jews under King Judas Maccabeus and the Persian King Antiochus. Wigs did not only serve as physical ornaments but also to indicate one's status. The Roman prostitutes, therefore, wore among others yellow wigs so that they could be easily recognized. Wigs were worn by Roman men only if they wished to camouflage thin hair. During that period, many different means of hair care and remedies against early balding were available. However, these remedies did not help Emperor Julius Caesar: he was and remained bald. As a special privilege, he was permitted to wear a laurel wreath to cover his balding scalp (10). Wigs were disapproved by the church in the Middle Ages because they were artificial and because they created vanity. Bishops refused to bless or to lay their hand on the wigged, since in doing so they had to touch the hair which could have come from the heads of heathens. During that period, it was also a taboo for female christians to let their hair grow long. Long hair was considered

as evil and seductive and women had to hide their hair under a closely fitting cap to avoid heretic persecution.

In the 17th century, wigs, which by then were only used for ornamental purposes, became fashionable once again.

In the 18th century, the wigs became larger and fancier. Wigs became fashionable under the influence of several prominent citizens who wore wigs to disguise their thin hair or baldness. More than 100 different types of wigs from that period are known, the largest being a 45 cm high construction stuffed with equine hair. The wig became a status symbol. The ingenious and often exceptionally large wigs which also contained human hair were rather expensive for ordinary citizens. In those days, it was also not uncommon that wigs were stolen. Wigs were regularly snatched from the head through the carriage windows with speed and dexterity. It was not unusual to remove the wig in the company of friends or acquaintances because wigs were not always comfortable to wear. Headaches in those days would have frequently occurred as a result of strained neck muscles. Even so, wearing a wig had its advantages: since the hygienic conditions were rather poor then, one was able to keep the scalp that was either closely clipped or completely shaven, free from vermins. Lice and other vermins which affected almost everyone were effectively doped by abundant use of creams and lotions. The built-in traps for lice in the wigs did the rest. The French Revolution meant the end of the extreme fashions in wigs.

Up until about the middle of the 20th century, the wig was worn to disguise one's shortcomings and served only as an "invisible" hair piece. In the 50s, after the discovery of synthetic hair, a new era of wigs began for women in the United States. Women began wearing wigs of various designs and of different colours. Men have not returned to wearing ornamental wigs since the French Revolution. Balding men got themselves attended to with less conspicuous means such as transplantation of hair or a toupee. In doing so, the resemblance with regard to the "other" hair was extremely important. With this, it appears that we have returned to the "Roman era", if we also take into account the large variety of remedies that are sold to guard us against early balding.

1.4 Social and symbolic meaning

In the previous sections, it repeatedly emerged that the social meaning of hair is very important. What is more, symbolism played an important role.
Through the ages, hair has been regarded as a symbol of virility and strength, whereas baldness has been associated with negative meanings. Evidence for the symbolic importance of hair on the scalp are known from History. The Romans completely shaved the scalps of prisoners, adulterers and traitors. In this manner, these were recognized as stripped of their strength. That hair was the seat of strength is generally known from the Biblicle tale of Samson (Judges 16:17). According to this tale, Samson lost his strength when Delilah cut off his hair.
The same custom plays an important role in the tradition of "scalping" the foe practised by many folks and which has been unjustly attributed predominantly to the American Indians. On the one hand, scalping was meant to express personal courage and one was expected to collect as many scalps as possible. On the other hand, it was meant to strip the other of status and strength. The scalped was stripped of his self-esteem and personality, his "manhood" was taken away.
These barbaric practices and traditions seemed to have died down towards the end of the last century. However, similar practices reoccurred during and immediately after the Second World War. In a number of countries including France and the Netherlands, women who had been on rather friendly terms with the occupying Germans were clean shaven as punishment. They were thus branded with a stigma through which all could immediately recognize them as being a "moffenmeid".
Hair also plays a role in recognizing the race to which one belongs. Generally, the Asians have thick dark straight hair. In the Europeans, the colour of hair varies from very blond to dark and the form varies from straight to curly. Africans generally have dark woolly hair.
Hair is also used as a means of communication in certain societies. This is very clearly observed in a number of African tribes. The amount and the form of hair can serve to distinguish different groups from each other and help to establish the social differences. The scalp of a newly chosen ruler of the Jukun in Northern Nigeria is shaven clean leaving only the last lock of hair which then serves as the distinctive mark of his office (11). In a number of African tribes, the different

phases in a child's life are indicated by the way in which hair is worn.
Newly borns are shaven clean to indicate that they no longer belong to the world of the spirits. Hair is kept short during childhood for practical and hygienic reasons. The transition from childhood to adulthood is characterized by the relative freedom of dressing one's hair according to one's wishes. When one returns to the world of the spirits after life on earth, prior to burial, the head is completely shaven since both the body and hair are considered impure.
In the current Western Society, hair is highly valued as a means of expression. As an additional sexual characteristic, hair is of much less value now than it was in the past. The 60s were revolutionary years in certain respects. Men protested against the establishment by growing their hair long, something that had till then been traditionally reserved for women. Hair became a form of expression, a recognition symbol of an anti-establishment movement. "Long-haired idle louts" rapidly became a common description for this group. This was contradicted by the phrase "better long-haired than short-sighted".
Since then, several other groups have also protested against the establishment and these groups too distinguished themselves by the way in which they dressed their hair. Skinheads have closely-cropped hair, whereas the punkers create colourful work of art with theirs.
Even today, we can observe the hair as a symbolic expression of a powerful position, for example the wigs worn by the judges in the English Court of Law.

1.5 Psychological aspects of hair and hair loss

1.5.1 Studies related to "physical attractiveness"

Hair is closely related to physical attractiveness (12,13). Although not specifically related to hair, a large amount of research concentrating on various aspects of physical attractiveness is available. During the last decades, research aimed at practically every conceivable aspect of personal appearance produced considerable knowledge referred to as the "physical attractiveness phenomena" (14,15).

The fundamental assumptions within this area of research are (a) physical attractiveness can be used to obtain detailed information of an individual and (b) the means are persuasive, subtle and powerful. Physical attractiveness phenomena reflect an encompassing term which is consistent with a hypothesis which states, "What is beautiful is good" (16). For example, research has shown that physically attractive individuals are praised more often by others (17), have happier marriages (18) and are suffering less social pressure (19).

Although research related to physical attractiveness has provided a great deal of information, very little is known about less attractive individuals. It seems that unattractiveness and its consequences are generally ignored or totally denied (20).

Information related to unpleasant aspects of physical appearance has mostly been obtained from studies that were almost exclusively conducted in clinical settings. Often, these studies involved patients with a dermatological affliction and who were of the opinion that they were unattractive. The social life and daily functioning of many patients were affected as a result of dermatological afflictions. The more such an affliction was visible, the greater was the influence on the social interactions (21).

Feelings of stigmatization (22) and embarrassment (23) were common among these patients. Jowett et al (24) reported that 40% of the patients felt that their social life was affected as a result of skin disease. In addition, 64% of these patients also reported that their skin disease had changed their socioeconomic activities. Van Keep (25) reported that almost all patients with a visible

dermatological disease avoided social contact and lost touch with friends and acquaintances. Baardman (26) observed that nearly 20% of the patients at a clinic for neurosis were negatively preoccupied with their physical appearance which resulted in among others, social avoidance and poor physical hygiene. Briefly, feelings of being physically unattractive seemed to be related to many negative psychosocial factors. For some patients, the psychosocial problems associated with being physically unattractive may be so distressing that they even consider undergoing cosmetic surgery (27,28).

1.5.2 Hair and hair loss

In one of the first psychological studies the possible relationship between hair and psychopathy (29) and mental deficiency (30) were studied. No relationship was found. Subsequent investigations focused more on various communicative aspects of hair, namely the amount, the colour, the length and the hairstyle. These investigations have been reviewed by Patzer (31). For example, blondes were considered to be less intelligent, red-heads to be less serious (32) and very hairy men to be sexually more potent (33), while short-haired men were perceived to resemble more the male stereotype, men with relatively long hair were associated with liberal social attitudes (34), less obedient to instructions (35) and generally made a distinctly negative impression (36). Men with long hair were regarded as outspoken and immoral. However, the negative impressions were absent, if the length of the hair of the interviewers was identical to that of the interviewees.

Sigelman et al (37) investigated the extent and the mechanisms by which bald and balding men were under-represented in elected high offices and compared the prevalence of hair loss among 522 governors and members of Congress. The authors concluded that elected men in high offices were more likely to have a full scalp of hair than would be expected in men of their age.

The inter-personal effects of hair were demonstrated well in a study by Moerman (38). In that study, 49 male and 47 female respondents were requested to score pictures of either a man with full scalp of hair or a man with androgenetic alopecia on personality traits, attractiveness and age. The scores indicated that the age of the man with androgenetic alopecia was, on the average, estimated at 10

years older than that of the man with full scalp of hair. In addition, the respondents rated the man with androgenetic alopecia as being more intelligent, stable and conscientious, whereas the man with full scalp of hair was rated as being more attractive and acceptable.
In a study by Cash (39) also, men with androgenetic alopecia were rated less favourably with regards to several criteria representing social perceptions. Androgenetic alopecia was generally responsible for the less favourable first impressions such as lower physical attractiveness, overestimation of age and less desirable personal and inter-personal qualities.
Burton et al (40) investigated the presumed relationship between baldness and masculinity. They concluded that bald men were no less "masculine" than those with good scalp hair growth, if masculinity is defined in terms of end-organ response to androgenic stimulation.

1.5.3 Empirical findings related to the psychological problems due to hair loss

Scientific evaluation of the psychological problems due to hair loss began with reports by patients describing their lowered self-esteem, a poor physical image and other social and psychological problems (41,42,43). These reports were followed by a limited number of studies in which more objective criteria were used to investigate social and psychological problems. Baxley et al (44) compared the self-evaluations of body (Body-image) and personality (Self-image) of cancer patients under chemotherapy who had subsequently developed alopecia with those of similar patients who had not developed alopecia. Cancer patients with alopecia expressed more negative feelings about their body and personality than those without alopecia suggesting the relevance of physical appearance for one's psychological frame of mind even under severe stress. Perini et al (45) observed that significantly more life-events had occurred in a group of patients with alopecia areata than in controls.
Passchier (46) stated that "problems with hair and skin deeply penetrate in the feeling, thinking and the behaviour of involved persons".
This is also apparent from a study by Gosselin (47) who reported elevated neuroticism and psychoticism not only in men with androgenetic alopecia

attending hair weaving therapy, but also in men with androgenetic alopecia who had not considered hair treatment and seemed relatively unconcerned about their baldness. On the other hand, Storer et al (48) using an adapted version of the Rosenberg self-esteem scale reported that the patients who had received minoxidil treatment for their androgenetic alopecia did not generally have a low self-esteem. Moreover, it appeared that the participants in the study had adjusted rather well to their situation.

Whereas the scientific information on the psychological problems of hair loss in men is scarce, this information in women is even scarcer. To date, the psychological and social problems in women with androgenetic alopecia have mainly been described anecdotally.

The lack of scientific information in women is rather surprising since more psychological problems would be expected in women than in men with androgenetic alopecia and because a smaller number of women are affected stressing their deviation from the norm. Another reason for expecting more psychosocial problems in women with androgenetic alopecia is that our cultural norms emphasize the relevance of physical attractiveness, particularly in women. An exception are the studies by Eckert (49,50) who reported that 20% of the women with diffuse alopecia had severe marital problems or were overtly depressed.

Most of the previously mentioned studies, however, either lacked objective criteria or relevant controls or were conducted in patients who had developed alopecia as a result of therapy for another disease.

One of the first studies in which the psychological problems of men with androgenetic alopecia were analyzed using standardized psychological techniques was conducted at the Department of Dermato-Venereology of the University Hospital Rotterdam-Dijkzigt in a group of men who participated in a clinical trial to establish the efficacy and safety of 2% minoxidil solution therapy (51). Although several patients in this trial attributed some specific social problems and worries to their hair loss, no indications for adverse psychological and social events were observed. However, this study has to be regarded as preliminary since it was conducted in retrospect and involved only a limited number of patients.

1.6 A theoretical model

Within the framework of a theory on personality, Berg (52) has been the only one who had explicitly concentrated on formulating theory surrounding hair and hair-related behaviour. In his book "The Significance of Hair" he explained how even the most normal daily behaviour originated from the unconsciousness. Before going into the details of his work, a brief explanation of some of the underlying theoretical concepts is essential.

In Freud's topographical model on the organization of personality, three different states of consciousness can be distinguished. These are the consciousness, the preconsciousness and the unconsciousness. The state of consciousness comprises all sensations and happenings which one is aware of at any given moment. The sensations remain conscious for a brief period and pass into the pre- or the unconsciousness. Consciousness, however, only comprises a little portion of life. The preconsciousness has also been described as the available memory. It consists of experiences and sensations which are not conscious at a given moment, but which can be recalled into consciousness directly with some effort. It forms the link between the consciousness and the unconsciousness. The unconsciousness occupies the deepest and the largest layer of human mind. The actual important motivation of the human behaviour originates here and is caused by passions. Not only are these forces unconscious, but there is also a great deal of restraint within an individual to recall them. Unconscious motives are often recalled symbolically or distoredly due to this restraint.

Freud developed another conceptual model of mental state, the so-called structural viewpoint. He introduced three basic structures of personality namely the "id", the "ego" and the "super ego".

1.6.1 The "id"

The id is the mental force that contains all that is present at birth: inborn and fixed in the constitution of an individual. It primarily concerns sexual and aggressive passions. It is brutal and disorganized, knows no moral rules and remains as the basis of motivation throughout life. It operates from a primitive

base and is initially free from all obstructions. The tension created by biological passions leads to the expression of the most basic necessity of the human life, the release of tension.

1.6.2 The "super-ego"

For an individual to be accepted as a socially functional member of the society, the individual has to have certain norms, values and attitudes which agree reasonably well with those of the society. These norms and values are acquired via a process of "socialization", that is to say, they are acquired from the social surroundings and form the super-ego. The super-ego, therefore, represents an internal version of the norms of the society and standards of behaviour.
According to Freud, super-ego is not inborn, but developed over a period of time by interactions with important individuals. Through this, distinctions between good and bad, moral and immoral are learnt. The super-ego now serves to control the id impulses. Freud begins by assuming that even the most common and normal behaviour has its fundamental origin in the unconscious mind. This is also true for our attitudes and our behaviour in relation to our hair. Hair-behaviour can be investigated using manifestations of the unconsciousness such as dreams, folklore, omens and perverses. It has been demonstrated that these are expressions of passions and norms.

1.6.3 The "ego"

The ego is that part of the mind which seeks ways to fulfil the desires of the id within the limitations imposed by the reality and the super-ego. The ego borrows its energy from the id which as far as its structure and functions are concerned, depends on the demands of reality.
In contrast to "ids", the ego follows the pleasure- and the reality principles, that is to say, that one is protected by delaying or not gratifying the instinctive needs from the id until a suitable occasion arises.
According to Berg, hair-behaviour is mostly a conflict between exhibitionism and fear. There is an inclination to show-off the hair, to be proud of it and to take good care of it, but at the same time there is also fear of clipping and hair loss.

In such a case, hair is combed as flat as possible.
The normal importance of the fear of getting bald or even turning grey are according to the author, "displacements" of fear.

1.7 Conclusions

During our survey of the literature, it appeared that only a few studies were available on the psychosocial aspects of androgenetic alopecia. In general, the information on hair loss seemed to have come from the popular literature. However, although some studies concerning hair were available, it appeared that these were predominantly on the positive effects of hair on physical attractiveness. Possible starting-points were come across in clinical studies in which the psychosocial consequences of afflictions affecting the physical appearance were investigated. Possible theories on hair loss were mentioned in the investigations by Berg who provided a psycho-analytical explanation for the behaviour regarding hair and hair loss.
In conclusion, we can state that currently very few studies are available in which standardized, reliable and valid means were used to investigate the psychological and social problems of hair loss. Therefore, an inventory of these problems cannot be compiled from these studies.

1.8 Study questions

The main objective of the studies described in this thesis is to study the psychosocial problems of men and women with androgenetic alopecia who applied for treatment. In chapter 2, the psychological characteristics of 59 men with androgenetic alopecia from a sample of the general population were compared with those of men without androgenetic alopecia and a group of men with androgenetic alopecia from a clinical population. Chapter 3 is devoted to a study at the psychological characteristics of a group of men with androgenetic alopecia who participated in a clinical trial. The questions are: 1. Do men with androgenetic alopecia who apply for treatment have unfavourable personality traits and specific hair problems?, 2. Does subjectively perceived regrowth of

hair lead to an improvement in social and psychological well being and a reduction in hair problems? and 3. Is the effect of perceived hair regrowth larger in younger than in older men? The study described in chapter 4 is devoted to research at the psychological and social problems of women with androgenetic alopecia. The outcome is compared with two control groups; women with non-visible dermatological disorders and men with androgenetic alopecia from a clinical population. Chapter 5 describes additional investigations into the characteristics and the level of psychological problems in women with androgenetic alopecia and their adaptation to their hair loss. The study questions are: 1. What problems exist in various life areas in the women with androgenetic alopecia who applied for treatment? and 2. How many women with androgenetic alopecia show general psychosocial maladjustment which is attributable to androgenetic alopecia?

1.9 Questionnaire for hair problems

For the purposes of this investigation, a questionnaire on specific problems concerning hair was designed (see Appendix 1). The questionnaire consisted of 20 items and was compiled on the basis of detailed interviews with several patients with androgenetic alopecia.
Since the Cronbach's alpha was 0.93 (N = 292), the internal consistency of the questionnaire could be considered as high. Appendix 2 shows the correlation coefficients of the questionnaire concerning hair loss and the psychological variables used in these studies, indicating its validity.

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CHAPTER 2

Psychological characteristics of men with androgenetic alopecia in a general population: an epidemiological study

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2.1 Abstract: The psychological characteristics of 59 men with androgenetic alopecia from a sample of the general population were compared with those of men without androgenetic alopecia (n=161) and a clinical group of men with androgenetic alopecia who applied for hair treatment at a department of Dermatology (n=168).
We evaluated the following psychological traits and personality characteristics: inadequacy, social inadequacy, rigidity, injuredness, self-sufficiency, dominance, self-evaluation, social functioning, self-esteem, body-cathexis, general psychological malfunctioning, hair satisfaction and the hair problem score. No abnormal psychological characteristics were found in the subjects with androgenetic alopecia from the general population. They appeared to have higher rigidity, hair satisfaction and less hair problems than the men of the clinical androgenetic alopecia group.
Further, men with androgenetic alopecia in the general population appeared to be less satisfied with their hair compared to men without androgenetic alopecia.

2.2 Introduction

Empirical studies on the prevalence of androgenetic alopecia in male subjects revealed varying frequencies for different populations. In male subjects the highest prevalence is found in the Caucasian race; about 45% (1), while the prevalence in Chinese subjects is only 15% (2). Given the high prevalence of androgenetic alopecia in the Caucasian race, the number of patients presenting complaints to the general practitioner is relatively low. Lamberts (3) recorded that in the Netherlands about 3.7 per 1000 patients per year with a female/male ratio of 2.6 visited their general practitioner for their hair loss. This suggests that both the physical and psychological impact of hair loss is minimal. An alternative explanation for this low number is that androgenetic alopecia might be considered by the society to be an unfortunate event which does not belong to the realm of maladies for which a visit to the general practitioner seem to be warranted. This opinion might be reinforced by the general view that the loss of hair is irreversible.
The introduction of minoxidil for the treatment of androgenetic alopecia, however, induced many subjects to look for treatment in the medical field. More than 8000 men with hair loss reflected on an advertisement in a Dutch newspapers inviting them for participation in a study on the effect of minoxidil,

which possibly shows a psychological impact of hair loss which was till sofar present but not expressed.
Up till now only few studies are available about the psychosocial problems of men with androgenetic alopecia (4,5). These studies involved a clinical population of men with androgenetic alopecia who volunteered for treatment. In general no evidence of psychological malfunctioning was found in these studies, although specific problems associated with hair loss was found.
No research, sofar has been carried out using a representative sample of the general population.
Therefore, in the present study the psychological characteristics were investigated in men with androgenetic alopecia from a non-clinical sample.

Our study questions were:

1. Do men with androgenetic alopecia psychologically differ from men without androgenetic alopecia in the general population
2. Do men with androgenetic alopecia in the general population psychologically differ from men with androgenetic alopecia in the clinical population.

2.3 Methods

2.3.1 Subjects and procedure

Subjects were recruited from the male population of a general practitioner's practice in Hendrik Ido Ambacht, a small town near the Dutch city of Rotterdam. For our study 403 male subjects between 18 and 49 years of age were selected randomly from 675 subjects which formed the complete male practice population. The subjects received a letter inviting them to participate in a study on hair loss. Of the initial group, 220 subjects returned the questionnaires (36 did so after a written reminder) resulting in a response rate of 55%. Each subject was asked to evaluate his hair type on the Hair loss scale of Hamilton. Subjects who indicated

a hair type corresponding type I, II or III, indicating no or minimal hair loss (AA-) were asked to provide answers on each questionnaire, except the Hair problem list. Subjects who indicated a hair type corresponding a score of type III vertex or more (AA+), were asked to complete the hair problem list in addition to the other questionnaires. As compensation they received a small reward of $ 10.

The clinical group (AAC+) consisted of 168 subjects between 18-49 years of age with androgenetic alopecia type III vertex or IV according to the Hamilton scale who applied for hair treatment at the University Hospital Rotterdam-Dijkzigt (a detailed description of the study is presented elsewhere (5).

2.3.2 Questionnaires

The following questionnaires were used:

The "Hair loss scale". This scale is used to classify the type and extend of AA in men. The hair loss scale is a Dutch translation of the Hamilton scale. Types of hair loss ranging from no hair loss (type I) to the most severe type of hair loss (type VII) are described and illustrated.

Type I to type III comprise scalps with no hair loss to those with frontotemporal recession which are usually symmetrical and are either bare or very sparsely covered with hair.

Type III vertex to type VII comprise scalps with frontotemporal recession as type III but also hair loss on the vertex to those with the most severe form of androgenetic alopecia in which all that remains is a narrow horseshoe-shaped band of hair -mostly not dense- which's begins laterally just anterior to the ear and extends posteriorly on the sides and quite low on the occiput.

The "Hair Problem List", which measures psychological and social problems related to baldness and cosmetic help-seeking. It contains 19 items that are based on several in-depth interviews with male subjects suffering from androgenetic alopecia. The list is constructed in the form of a Likert scale, with five response categories and is scored by adding the item scores. In comparison with the hair problem list used in the previous study one item was left out since it was specific for the treatment study (5).

The "Inventory List On Associations with Others", is a self-report inventory of

social anxiety and assertiveness. It contains two scales of social activities: overall social discomfort during contact with others and overall social frequency of contact with others. These scales contain five subscales each concerning: passing criticism, expressing personal opinions, paying compliments to others, initiating conversations and stating positive self-assertiveness. The reliability and validity of the IOA were found to be satisfactory for the general indices of discomfort and frequency as well as for the subscales (6).

The "Self-esteem scale" was used for measuring global self-esteem (7). This Dutch scale was developed using factor analysis on a translation of Rosenberg's self-esteem scale (8). It contains nine items and is scored on a five-point scale.

The "Dutch Personality Questionnaire" is a translated and shortened version of the California Psychological Inventory.

It consists of 133 items measuring seven personality traits: inadequacy (vague physical complaints, depressed mood, non specific anxiety and feelings of insufficiency), social inadequacy (avoidance of and distress regarding social contacts), rigidity (preference for situations in which everything goes according to one's plans, possession of fixed habits and principles), injuredness (criticism and distrust of others), self-sufficiency (satisfaction with oneself and disinterest in others and their problems), dominance (self-confidence, preference for taking the initiative and the leading role), self-evaluation (positive attitude towards work, flexibility and well-adaptedness). The scales have good test-retest reliability and validity research has confirmed the reliability of the scales (9).

The "Delft Questionnaire" is a screening instrument for general unspecified psychological problems. It contains 33 items and is used for obtaining a global psychological impression of maladjustment. The reliability and validity of this questionnaire is considered to be satisfactory (10).

The "Body-cathexis list", originally developed by Secord and Jourard (11) which measures the degree of satisfaction with various parts or processes of the body and includes 47 items. In this study, we used a translated and modified 40-item version of the list included in the most recent studies (12).

Body characteristics were evaluated on a five-point Likert scale, ranging from strongly negative to strongly positive.

The reliability is considered to be satisfactory and suggests stability over time (13).

2.3.3 Data analyses

Since the subjects from the AA+ group were significantly older than both the AA- group and the AAC+ group and the scores for several psychological measures were age-dependent, ANCOVAS (analysis of covariance) were performed while age was included as a covariant. The analyses were carried out for each psychological measure separately for testing the differences between the groups AA+ vs. AA-, respectively the groups AA+ vs. AAC+.

2.4 Results

Of the 220 subjects in this study, 59 (27%) subjects with a mean age of 40 years indicated type of III vertex or higher on the Hair loss scale, while 160 (73%) with mean age of 34.8 years of age indicated type I to type III on the hair loss scale. The mean age of the subjects from the clinical sample was 35.8 years of age.

About three out of every four subjects in each group had more than secondary education while the ratio for insurance (sickfunds vs. private insurance) which can be considered as a raw indication of social class, was about the same (5:4). The means of the psychological characteristics of the three groups and the outcome of the ANCOVAS are shown in Table 1.

TABLE 1. Means of the psychological characteristics of male subjects from the general population with (AA+) and without androgenetic alopecia (AA-) and clinical group of men with androgenetic alopecia (AAC+) and *p*-values of the differences. The standard deviations are between parentheses.

	General population		Clinical study		
Psychological characteristics	AA+ (I)	AA- (II)	AAC+ (III)	*p*-value (I vs II)	*p*-value (I vs III)
Inadequacy	8.6 (6.6)	9.1 (7.4)	8.5 (7.2)	ns	ns
Social inadequacy	7.9 (6.3)	9.5 (7.7)	8.9 (6.7)	ns	ns
Rigidity	28.2 (8.5)	26.9 (7.9)	24.6 (8.1)	ns	<.01
Injuredness	19.2 (7.7)	18.4 (6.9)	18.6 (7.4)	ns	ns
Self-sufficiency	12.5 (4.1)	12.4 (5.1)	13.3 (5.8)	ns	ns
Dominance	18.3 (5.8)	16.8 (6.5)	17.1 (5.9)	ns	ns
Self-evaluation	30.0 (5.3)	29.6 (5.9)	29.6 (4.9)	ns	ns
Overall social discomfort	61.3 (19.9)	65.4 (18.5)	64.3 (18.5)	ns	ns
Overall social frequency	110.1 (17.1)	110.1 (18.1)	110.4 (16.5)	ns	ns
Self-esteem	35.1 (4.2)	34.7 (5.1)	35.7 (4.3)	ns	ns
Body-cathexis	135.7 (16.4)	140.9 (18.9)	140.0 (17.7)	ns	ns
Gen. psychological maladjustment	11.2 (7.1)	12.3 (6.9)	11.2 (6.7)	ns	ns
Hair satisfaction	3.0 (0.8)	3.6 (1.1)	2.4 (0.9)	<.001	<.01
Hair problem list	32.1 (11.7)	---------	46.2 (14.0)	----	<.001

ns: not significant

No significant differences between the group AA+ and the group AA- from the general population was found, except for hair satisfaction ($F(1,215) = 18.31$, $p < .001$): the subjects with androgenetic alopecia were found to have less satisfaction with their hair than the subjects without androgenetic alopecia. Further the men from the AA+ group had significantly higher scores for rigidity ($F(1,225) = 7.10$, $p < .01$), hair satisfaction ($F(1,226) = 7,261$, $p < .01$) and a lower score on the hair problem list ($F(1,226) = 33.107$, $p < .001$) than the men from the AAC+ group.

2.5 Discussion

Research on male pattern baldness or androgenetic alopecia is a subject of growing interest, considering contemporary studies from various disciplines like anthropology (14), dermatology (15) and social psychology (16,17,18).

In these studies the communicative, historical and interpersonal effects of hair and hair loss are discussed. In this study, the psychological characteristics of men with androgenetic alopecia from the general population were studied using standardized psychological tests and compared with those of two control groups: men from the general population without androgenetic alopecia and a group of men with androgenetic alopecia from a clinical study who applied for hair treatment. In this study 27% of the subjects reported hair loss of type III vertex or more. This figure is very similar with those of Hamilton (1) who found in the age group 15-49 years of age that nearly 29% of the sample had androgenetic alopecia according to type III vertex or more. Despite the considerable number of men with androgenetic alopecia and the widespread attention for scalp hair, only few scientific studies using reliable and standardized test are available on the psychological aspects of androgenetic alopecia.

Gosselin (19) reported raised levels of neuroticism and psychoticism not only in men with androgenetic alopecia who attended hair weaving therapy, but also in men with androgenetic alopecia who had not considered hair treatment and seemed relatively unconcerned about their baldness. Storer et al (20) who used an adapted version of the Rosenberg self-esteem scale reported that the subjects who received minoxidil treatment for their androgenetic alopecia did not generally have a low self-esteem.

We evaluated the following psychological traits and personality characteristics using valid tests: inadequacy, social inadequacy, rigidity, injuredness, self-sufficiency, dominance, self-evaluation, social functioning, self-esteem, body-cathexis, general psychological malfunctioning and specific hair problems.

Overall, the men with androgenetic alopecia from the general population did not differ in psychological respect, neither from the men without androgenetic alopecia nor from the clinical male subjects seeking treatment for their androgenetic alopecia, with an exception for rigidity, which appeared to be

higher.

This finding confirms the outcome of Storer et al, but is in discrepancy with the results reported by Gosselin. In the latter study, however, the criteria for subject selection are not mentioned in detail, which makes comparison difficult.

The findings are also in line with the results of previous studies carried out by our research group, in which an even slightly more adequate psychological functioning of the clinical group of men with androgenetic alopecia was found (4), as indicated by lower scores for inadequacy and rigidity and higher scores for dominance and self-evaluation. Therefore, more rigidity in the present sample of men with androgenetic alopecia from the general population than in the clinical sample might be explained by the abnormal low score for rigidity in the latter group.

As one might have expected, the subjects from the AA+ group had a less positive score on hair satisfaction compared to the subjects from the AA- group, but a more positive score than the subjects from AAC+ group who applied for treatment.

According to de Koning et al (21), 50 % of the patients who visited the general practitioner for their hair loss had psychological problems. This outcome seems to be in variance with the present study. However, it is possible that, within the general population of subjects with androgenetic alopecia a subpopulation is present who suffer severely under their affliction. This group might be seen by the general practitioner in particular. A psychosocial anamnesis of the patients presenting their androgenetic alopecia to the physician might distinguish those who suffer from psychological maladjustment from those who look (only) for preservation or enlargement of their attractiveness. The finding on the psychological aspects of male androgenetic alopecia cannot be extrapolated to female androgenetic alopecia.

According to a study by van der Donk et al (22) more psychological distress and psychosocial problems is to be expected in women than in men with androgenetic alopecia.

Some caution has to be applied when drawing conclusions from the present study, since those who responded (55%) might not be representative for the whole population.

It is possible that psychologically more unstable men did not volunteered for

participation. However, t-tests between responders who immediately returned the questionnaires and subjects who responded after a written reminder revealed no significant differences in psychological respect. Consequently, it is not likely that our results are systematically biased. Nevertheless, as the subjects were selected from a general practitioners practice of a small urban town, confirmation from studies with samples from other populations is recommended.

2.6 Conclusions

Men with androgenetic alopecia from the general population showed no abnormal psychological characteristics. They scored higher on rigidity and hair satisfaction and had less hair problems than the men with androgenetic alopecia from a clinically treated group.

Further, men from the general population with androgenetic alopecia scored lower on hair satisfaction than men from the general population without androgenetic alopecia.

Confirmation of these results on other subjects samples is recommended.

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CHAPTER 3

Psychological characteristics of men with androgenetic alopecia and their modification

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3.1 Abstract: Psychological characteristics were studied in a sample of 168 men with androgenetic alopecia who participated in a clinical trial on the efficacy of minoxidil gel. In general, no evidence of psychological malfunctioning was found. Instead, a slightly more adequate psychological state was indicated. However, specific problems associated with hair loss were reported by a substantial number of men. Responders with cosmetic improvement in the group over 35 years of age improved more regarding general psychological maladjustment, inadequacy and self-evaluation than those who did not respond. A reverse trend was, however, found in the group younger than 35 years of age, where the non-responders improved more. An explanation for these findings is derived from the theory of cognitive dissonance.

3.2 Introduction

Psychological problems due to androgenetic alopecia are reflected to a greater degree in popular literature than in scientific studies. This might be associated with the previous concept of health which was limited to the "absence of a disease". It was only recently (World Health Organization) that health was described more broadly and positively as "a state of complete physical, mental and social well-being" and included the psychological consequences related to physical undesirable states.

The focus of scientific attention on psychological aspects of hair loss started with case reports by patients, describing their diminished self-esteem, an inferior physical image and other social and psychological implications (1,2). These were followed by a small number of studies using standardized psychological instruments. Baxley et al (3) studied the psychological side effects of chemotherapy in cancer patients who developed alopecia. They concluded that several cancer patients considered the loss of hair the most traumatic side effect of cancer because it resulted in a poor body image.

Gosselin (4) found increased levels of neurotisicm and psychotisicm in men with hair loss who volunteered for hair-weaving therapy compared with a normal group in the same age range.

However, Storer et al (5) reported no diminished self-esteem in patients with androgenetic alopecia who applied for treatment with minoxidil. Passchier et al (6) did not find evidence of general psychological and social malfunctioning in men with androgenetic alopecia, although specific problems attributed to the hair

loss were present in more than 30% of the men.
The latter study, however, can be considered exploratory, because it was conducted retrospectively and involved a limited number of study subjects.
Topical minoxidil is the first medication to have a positive effect on male-pattern baldness (7,8,9), as shown by controlled studies. We took part in a clinical trial on the efficacy of minoxidil applied as a gel, which addressed the following research questions.

1. Do men with androgenetic alopecia who apply for treatment have unfavourable personality traits and specific hair problems?
2. Does subjectively perceived regrowth of hair lead to an improvement in social and psychological well being and a reduction in hair problems?
3. Is the effect of perceived hair regrowth larger in younger than in older men?

3.3 Materials and methods

The subjects learned about the minoxidil trial at the University Hospital Rotterdam-Dijkzigt by an announcement in a newspaper and on a local radio station. From the applicants, 200 healthy, dark-haired men, 18-49 years of age with androgenetic alopecia type III vertex or IV according to the Hamilton scale (10), were selected who had a discernible balding patch on the vertex of no less than 5 cm and no more than 10 cm.
The applicants were considered healthy if their physical examination, electrocardiogram, echocardiogram, chest x-ray and laboratory evaluations (haematology, serum biochemistry and urinalysis) were normal. Subjects with hypertension (> 140/90 mmHg); scalp disease; a history of cardiorenal, hepatic, or endocrine disease; or those receiving corticosteroids, cytotoxic agents, peripheral vasodilatory, antihypertensive, bronchodilatory, antiepileptic medications or other hair restorers were excluded from the medical part of the study.
Also applicants with clear-cut psychiatric symptoms and those who were unable to follow or understand the study instructions were excluded. The subjects were assigned randomly, in a double-blind fashion, to either the minoxidil-gel or a

placebo group. The efficacy of minoxidil gel on hair growth was determined by comparison of the treatment groups at the end of the 6-month period.
Subsequently, all subjects received the active medication to use during the following 6-month period. The medical results of the trial will be reported in another publication (in preparation).
All subjects agreed to take part in the study, and the protocol was reviewed and approved by the Medical Ethics Committee of the University Hospital Rotterdam Dijkzigt. The subjects received a small reward for completing the questionnaires (the equivalent of $ 5 for each series).

3.3.1 Procedure

Each subject was asked to participate in a psychological study 1 month before the trial. Of 200 subjects, 168 agreed, resulting in a response rate of 84%. Their mean age was 35 years (range 20 - 49 years). Each subject received a series of questionnaires by mail with the instructions to provide answers relating to the month preceding the study (pre-test).
The second series of similar questionnaires was completed just before they ended the study after 12 months (post-test). After month 6, all subjects from the placebo group were transferred to minoxidil, a procedure of which each subject was informed. Due to drop-outs, the response rate for the psychological part of the study at the post-test measurement was reduced to 60% (n =122).

3.3.2 Instruments

The following instruments were used. The "Hair Problem List" measures psychological and social problems related to baldness and cosmetic help-seeking. It contains 20 items that are based on several in-depth interviews with subjects chosen at random suffering from androgenetic alopecia.
The list is constructed in the form of a Likert scale with five response categories; it is scored by adding the item scores. The "Inventory List On Associations with Others" (IOA) is a self-reported inventory of social anxiety and assertiveness and contains two scales of social activities: overall social discomfort during contact with others and overall social frequency of contact with others. These scales

contain five subscales each: concerning passing criticism, expressing personal opinions, paying compliments to others, initiating conversations and stating positive self-assertiveness. The reliability and validity of the IOA appeared to be satisfactory for the general indices of discomfort, frequency, and for the subscales (11). The "Self-esteem scale" was used for measuring global self-esteem (12). This Dutch scale was developed using factor analysis on a translation of Rosenberg's self-esteem scale (13). It contains nine items and is scored on a five-point scale.

The "Dutch Personality Questionnaire" (NPV) is a translated and shortened version of the California Psychological Inventory. It consist of 133 items measuring seven personality traits: inadequacy (vague physical complaints, depressed mood, nonspecific anxiety and feelings of insufficiency), social inadequacy (avoidance of and distress regarding social contacts), rigidity (preference for situations in which everything goes according to one's plans, possession of fixed habits and principles), injuredness (criticism and distrust of others), self-sufficiency (satisfaction with one's self and disinterest in others and their problems), dominance (self-confidence, preference of taking initiative and the leading role), self-evaluation (positive attitude towards work, flexibility and well adaptedness). The scales have good test-retest reliability and validity research confirms the reliability of the scales (14).

The "Delft Questionnaire" (DQ). The DQ is a screening instrument for general unspecified psychological problems. It contains 33 items and is used for gaining a global psychological impression. The reliability and validity of this questionnaire is considered satisfactory (15). The "Body-cathexis list" (BC) originally developed by Secord and Jourard (16), measures the degree of satisfaction with various parts or processes of the body. In this study we used a translated and modified 40-item version of that used in the most recent studies (17). Body characteristics were evaluated on a five-point Likert scale ranging from strongly negative to strongly positive. Its reliability is considered satisfactory and suggests stability against time (18).

3.3.3 Statistical analysis

First, personality traits before treatment were evaluated by comparing the mean scores of the sample with the mean scores of a normal group; the outcomes were tested with a t-test for independent samples. Specific hair problems were described by percentage scores.
Second, the changes in characteristics from pre-test to post-test measurements were tested with a t-test for paired samples. Third, analysis of variance was done on post-treatment scores for the psychological variables separately, and pretreatment scores were included as a covariant. This statistical approach has been advocated for the analysis of treatment effects in a pre-test/post-test control-group design (19).
Independent variables were age (< 35 vs. ≥ 35 years) and cosmetic response (responder vs. non-responder). Age was incorporated as an independent variable, because a previous pilot study suggested that it was a moderating variable in the psychological problems related to hair loss.
Age was dichotomized at the mean of our sample, resulting in two levels; less than 35 and equal to or more than 35 years of age. Since we were particularly interested in the effect of the subjective perception of regrowth of hair on the psychological variables, we used the subjects' judgment of their hair regrowth as a criterion, instead of the investigator's. Responders were defined as having moderate or dense regrowth of hair and non-responders as having no or minimal regrowth of hair.
The assignment into the responder/non-responder group on basis of the subjective perception had a 81% accordance with the assignment on basis of the evaluation of the investigator. After treatment, 41% of the subjects who participated in the psychological study were responders and 59%, non-responders.
Dependent variables for the analyses were: the scores on the hair problem list, the overall social discomfort and frequency of contact with others, each sub-scale of the NPV, the self-esteem scale, the DQ, and the BC. In addition, the hair item on the BC was analyzed as a dependent variable ("hair satisfaction"). The SPSS/PC+ program was used for data analyses.

3.4 Results

3.4.1.Psychological characteristics and hair problems before treatment

Table 1 shows the mean personality traits, overall social discomfort and overall social frequency of contact with others and the general psychological maladjustment of the subjects measured at the pre-test with the scores of comparable normal groups.

TABLE 1. Mean personality traits, overall social discomfort and overall social frequency of contact with others and general psychological maladjustment of subjects with androgenetic alopecia and comparable norm groups.

Psychological characteristics	Men with androgenetic alopecia		Norm group	
	Mean	SD	Mean	*p*-value
Inadequacy	8.5	7.5	10.1	< .01
Social inadequacy	8.9	6.8	9.5	ns
Rigidity	24.6	7.7	29.2	< .005
Injuredness	18.6	6.7	18.2	ns
Self-sufficiency	13.3	5.0	12.8	ns
Dominance	17.1	6.1	15.6	< .005
Self-evaluation	29.6	5.6	28.0	< .005
Overall social discomfort	64.3	17.6	66.9	ns
Overall social frequency	110.5	16.3	112.6	ns
General psychological maladjustment (DQ)	11.2	7.3	12.5	ns

SD: standard deviation; ns: not significant.

Figure 1 illustrates the differences for the personality traits. Significantly lower scores were found in the treatment group regarding inadequacy and rigidity with higher scores for dominance and self-evaluation. Figure 1 shows that the differences were smaller than one standard deviation.

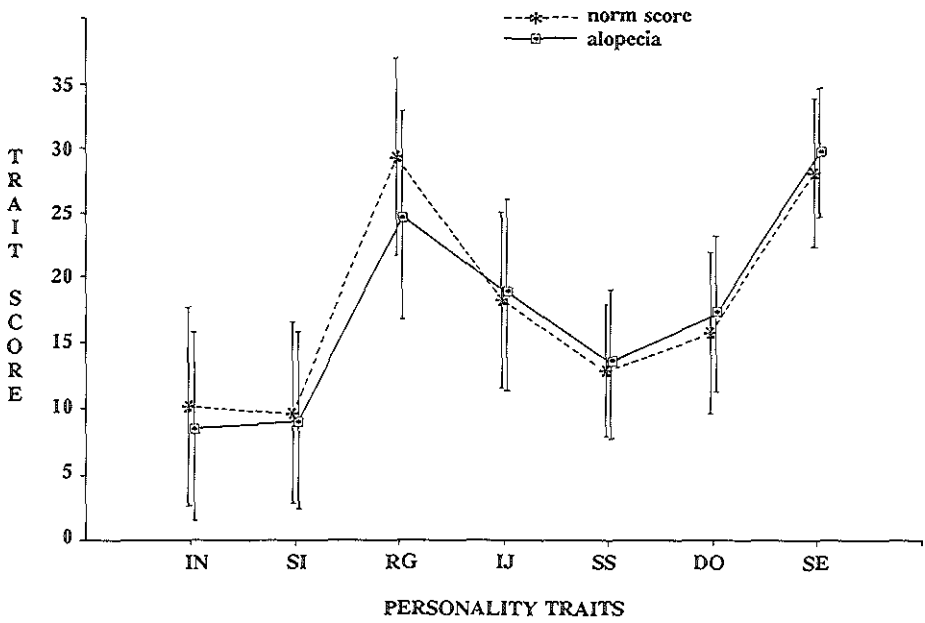

Figure 1. Mean personality traits of men with androgenetic alopecia and a comparable norm group.

In Table 2 the percentages and absolute numbers of subjects who agreed with the statements on the hair problem list are presented.

TABLE 2. Hair problems of men with androgenetic alopecia.

Hair problems	pre-test (N = 168)	post-test (N = 122)
Is often reminded of baldness	54% (90)*	36% (44)
Compares own hair with that of others	51% (85)	31% (38)
Tried remedies	42% (70)	32% (39)
Others underestimate hair problems	39% (65)	28% (34)
Feels less attractive	29% (48)	11% (14)
Annoyed by jokes about baldness	28% (47)	20% (24)
Tried medical therapy	26% (43)	19% (23)
Feels much older	24% (41)	9% (11)
Considered hair transplant	20% (34)	13% (16)
Little understanding from others	20% (34)	12% (15)
Others make baldness a problem	20% (34)	11% (14)
Discomfort in presence of women	12% (20)	5% (6)
Worries about baldness	11% (19)	4% (5)
Considered a wig	11% (18)	4% (5)
Feels ashamed	8% (13)	3% (4)
Talks frequently about baldness	8% (13)	5% (6)
Goes out less	5% (8)	2% (2)
Discomfort in presence of men	4% (6)	4% (5)
Less able to make contact	2% (4)	2% (2)
Feels excluded	1% (2)	1% (1)

* Absolute number of subjects answering agree or strongly agree.

More than 50% of the subjects stated at the pre-test that they were often reminded by others about their baldness and tended to compare their own hair with that of others; almost 40% of the subjects reported that other people underestimate hair problems. About one quarter of the subjects felt older, less attractive, and become annoyed by jokes about their baldness. Many subjects (42%) had tried remedies, and 26% had applied for medical therapy in the past. For the

subjects who completed both the pre-test and the post-test questionnaires, the mean scores became significantly lower for social inadequacy, overall social discomfort, general psychological maladjustment, and the hair-problem score, and significantly higher for self-evaluation and hair satisfaction (Table 3).

TABLE 3. Psychological characteristics of subjects who completed the questionnaires both at pre-test and post-test; and *p*-values of the differences.

Psychological characteristics	pre-test	post-test	SD	*p*-value
Inadequacy	8.0	7.4	4.6	ns
Social inadequacy	8.7	7.6	4.2	<.01
Rigidity	24.8	24.0	4.9	<.10
Injuredness	18.0	17.6	4.8	ns
Self-sufficiency	13.1	13.0	5.0	ns
Dominance	17.4	18.1	4.3	ns
Self-evaluation	29.8	30.8	3.4	<.01
Overall social discomfort	63.0	59.2	16.6	<.05
Overall social frequency	111.8	113.5	10.7	<.10
General psychological maladjustment (D.Q.)	10.6	9.7	4.5	<.05
Self-esteem	35.8	36.3	3.7	ns
Hair problem score	48.7	44.5	8.1	<.000
Body-cathexis	140.0	139.2	18.4	ns
Hair satisfaction	2.5	2.7	0.8	<.001

SD: standard deviation; ns: not significant.

3.4.2 Effects of self-perceived regrowth of hair

A two-tailed t-test between the dropouts and the subjects who completed the study showed no significant differences ($p < 0.05$), except for general psychological maladjustment, which was higher in the dropouts.

With regard to the main effects of response and age, only a trend for a response effect on hair satisfaction ($F(1,115) = 3.20$, $p < 0.1$) was found; responders were more satisfied at the post-test than non-responders. Significant response x age effects were found on general psychological maladjustment ($F(1,115) = 7.82$, $p < 0.01$), inadequacy ($F(1,113) = 10.06$, $p < 0.005$), and self-evaluation ($F(1,113) = 5.30$, $p < 0.05$) (figs. 2-4), although a trend toward interaction was found for social inadequacy ($F(1,113) = 3.43$, $P < 0.1$) and self-sufficiency ($F(1,113) = 3.44$, $p < 0.1$). Responders of 35 years and older improved more than the non-responders on general psychological maladjustment, inadequacy, self-sufficiency, and self-evaluation. However, in the subgroup younger than 35 years, a reverse effect was found; here the non-responders improved more on these measures.

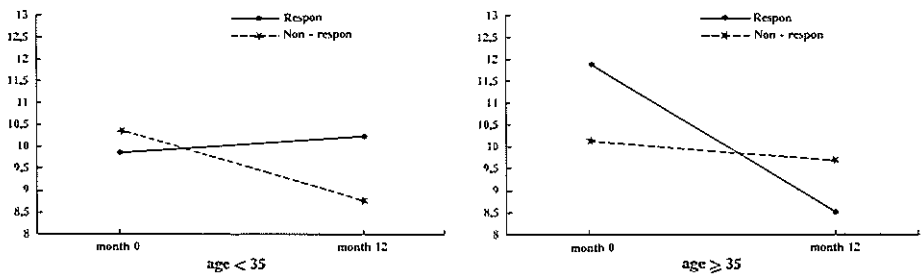

Figure 2. Mean general psychological maladjustment at pre-test and post-test for response (responder versus non-responder) and age (young versus old).

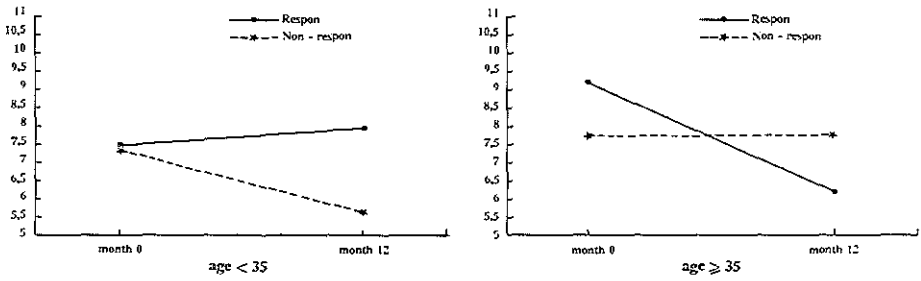

Figure 3. Mean inadequacy at pre-test and post-test for response (responder versus non-responder) and age (young versus old).

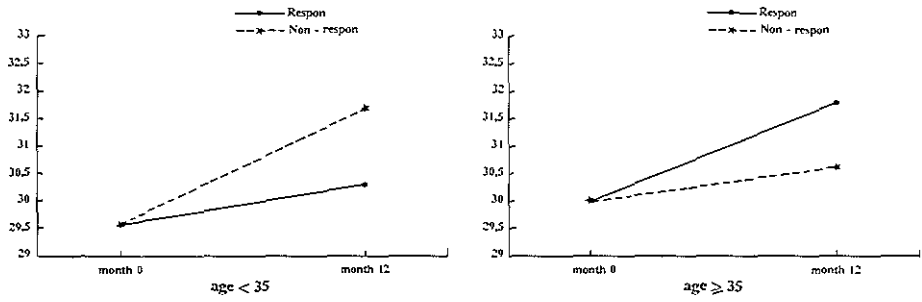

Figure 4. Self-evaluation at pre-test and post-test for response (responder versus non-responder) and age (young versus old).

3.5 Discussion

Problems related to androgenetic alopecia have rarely been discussed in the theoretic framework of psychological theory. Several decades ago, Berg (20) hypothesized on the psychological aspects of hair loss on the basis of Freud's psychoanalytic theory.

He stated that the anxiety of becoming bald might be considered a displacement of castration anxiety. A test of this hypothesis requires an instrument for the measurement of these intrapsychic unconscious processes. Because there is no such instrument, our study focused more on the problems which were present in

the patients on a conscious level. The outcome was consistent with the results of our previous study (6), ie no indication of psychological malfunctioning was found in men with androgenetic alopecia. On the contrary, significantly (although slightly) higher scores were found for dominance and self-evaluation and lower scores for inadequacy and rigidity.

This findings agrees with that of Storer et al (5), who reported normal self-esteem in men with androgenetic alopecia, but it disagrees with Gosselin (4) who found increased neurotisicm and psychotisicm, although general psychological malfunctioning was absent.

The more preferable psychological state of our subjects with androgenetic alopecia, might be the result of selection; they volunteered to enrol in response to our invitation, instead of visiting the hospital urged by their complaints. This might have restrained the psychologically more unstable men with androgenetic alopecia from responding.

Specific problems associated with hair loss were present in a substantial number of subjects. Most frequently mentioned were, " is often reminded of baldness", "tried remedies", and "compares one's own hair with that of others". The same hair problems were mentioned by a comparable percentage of subjects in our previous study (6).

Averaged across young and old subjects, subjective perception of regrowth of hair was not associated with a significant improvement in psychological or social aspects and a decrease in specific hair problems. However, several significant interactions revealed age-specific effects of subjective perception of hair regrowth.

The responders in the $\geq$ 35-year-old group appeared to improve more than the non-responders regarding general psychological maladjustment, inadequacy and self-evaluation. A reverse trend was found for the less than 35-year-old group, where the non-responders improved more than the responders on these measures. The responders became more satisfied with their hair. An explanation for the finding of more psychological improvement in non-responders than in responders in the less than 35 year old group might be found in Festinger's (21) theory of cognitive dissonance. Individuals are motivated to explain the cause-and-effect relations of events to give the meaning of, or the reason for, their actions. Attributions are made about the potential causes of the outcome. The theory of

cognitive dissonance states that the existence of dissonance (two inconsistent cognitions in one individual) is psychologically uncomfortable and motivates the person to try to reduce the dissonance and obtain consonance. The magnitude of dissonance depends in particularly on the importance of each cognitive element. Wong and Weiner (22) concluded on the basis of experiments that the tendency for spontaneous attributional searching is strong in the context of failure and an unexpected outcome.

In these respects, it is salient that the less than 35-year-old subjects had more hair problems in the pre-test period and showed less hair satisfaction than the ≥ 35-year-old subjects.

For the less than 35-year-old non-responders, the absence of a positive response created more dissonance between the cognition of invested time for hair treatment, on the one hand, and the lack of cosmetic improvement, on the other. Reporting a psychologically more favourable state after the treatment might have reduced this dissonance.

It would be interesting to conduct further research in a population of women with androgenetic alopecia to evaluate the cognitive dissonance hypothesis and to explore possible psychological problems.

3.6 Conclusions.

Men with androgenetic alopecia who applied for minoxidil-gel treatment generally showed no psychological malfunctioning, but they had an even more positive psychological state than normal groups.

However, specific hair problems were observed in a substantial number of subjects. Responders in the ≥ 35-year-old group showed more improvement on several measures of general psychological impairment than the non-responders. A reverse trend was, however, found in the less than 35-year-old group where the non-responders were more improved.

The cognitive dissonance hypothesis requires confirmation with an epidemiological study, which involves unselected population of men with androgenetic alopecia.

Drug Name

2% minoxidil: Regaine

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CHAPTER 4

Psychological characteristics of women with androgenetic alopecia: a controlled study

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4.1 Summary

The psychological characteristics and the hair problems of 58 females with androgenetic alopecia were compared with a group of women with non-apparent dermatological diseases, and with a group of men with androgenetic alopecia.
The women with androgenetic alopecia had higher scores for self-sufficiency and social-inadequacy compared to the women with non-visible dermatological complaints, and they scored higher for inadequacy, rigidity, and general psychological maladjustment than the men and lower scores for injuredness, self-evaluation and self-esteem.
The women with androgenetic alopecia had more psychosocial problems, which they attributed to the hair loss, than the other groups.

4.2 Introduction

Few scientific studies have been published on the psychological problems related to hair loss, and these have mainly concerned men.
A greater degree of neurotisicm and psychotisicm was found in men with androgenetic alopecia and who were participating in hair weaving therapy when compared with those unconcerned about their hair loss (1). No evidence of general psychological and social difficulties was found in other studies of men with androgenetic alopecia (2,3), although a number of specific problems closely related to hair loss were reported by a substantial proportion of men.
In a study of 564 women, 13% were found to have loss of hair from the scalp before the menopause and 37% afterwards (4).
So far, there have been no empirical studies on the psychological problems of women with androgenetic alopecia. It is likely that in our society which places much importance on the physical attractiveness of women, they would be expected to have more distress about their hair loss than men. In a study of 32 women with diffuse alopecia who were examined by a psychiatrist, more than 20% of them had severe marital and sexual problems and two were overtly depressed (5). However, objective measurement were lacking in this study and there was no suitable control group.
In the present study, the psychological and social problems of women with androgenetic alopecia were studied using standardized psychological techniques and compared with two control groups; women without visible dermatological

disorders and men with androgenetic alopecia.

4.3 Methods

4.3.1 Subjects

The female subjects studied were involved in a trial of 2% minoxidil lotion in the treatment of their hair loss. They had diffuse thinning of the hair in the frontal and parietal regions of the scalp, with and without temporal recession, and were graded I and II according to the Ludwig scale (6).
Fifty-eight women (age range 20-47 years, mean age 35 years) participated in the psychological study. A group of 48 female control subjects (age range 18-44 years, mean age 29 years) with non-chronic dermatological conditions were also recruited for the study.
A further control group was included that consisted of men with androgenetic alopecia type III or IV according to the Hamilton scale. This group had undergone psychological studies in a previous project which has been reported (3). The protocol for this study was reviewed and approved by the Medical Ethics Committee of the University Hospital Rotterdam-Dijkzigt.

4.3.2 Procedure

All the female subjects with androgenetic alopecia participated in our psychological study were at the end of the first 32-week period of treatment either with minoxidil or with placebo. The female control subjects had the same series of questionnaires as were given to those with androgenetic alopecia , apart from the hair problem list and instead they had a dermatological complaint list. The male control group completed the same series of questionnaires apart from the self-rating scale for depression, and the self-rating questionnaire for anxiety.

4.3.3 Psychological evaluation

Hair problem list. This measures psychological and social problems related to baldness and seeking help for the condition. It contained 20 items based on several in-depth interviews with the male and female subjects with androgenetic alopecia. The list was constructed in the form of a Likert scale with five response categories and the scores added.

Dermatological complaint list. This was an adaption of the hair problem list and focused on general dermatological complaints. Three questions from the original list were excluded because they were related to hair.

Inventory list on associations with others. This was a self-reporting inventory of social anxiety and assertiveness. It contained two scales of social activities, the overall discomfort during social contact with others and the frequency of social contact. It had five subscales that concerned passing criticism, expressing personal opinions, paying compliments to others, initiating conversations and stating positive self-assertiveness. This inventory list is satisfactory as regards its reliability and validity (7).

Self-esteem scale. This was used for measuring global self-esteem (8) and was developed from the Rosenberg self-esteem scale (9). It contained nine items and was scored on a five-point scale.

Dutch personality questionnaire. This was a translation and shortened version of the California Psychological Inventory.

There were 133 items that measured seven personality traits. These were inadequacy (IN) (vague physical complaints, depressed mood, non specific anxiety and feelings of insufficiency), social inadequacy (SI) (avoidance of and distress regarding social contacts), rigidity (RG) (preference for situations in which everything goes according to one's plan, possession of fixed habits and principles), injuredness (IJ) (criticism and distrust of others), self-sufficiency (SS) (satisfaction with oneself and disinterest in others and their problems), dominance (DO) (self-confidence, preference for taking the initiative and the leading role), self-evaluation (SE) (positive attitude towards work, flexibility and well-adaptedness). The reliability of these scales has been confirmed (10).

Delft questionnaire. This was a screening instrument for general and unspecified

psychological problems. It contained 33 items and was used for obtaining a global psychological assessment for maladjustment. The reliability and validity of this questionnaire was considered to be satisfactory (11).

The body-cathexis list. This was originally developed by Secord and Jourard (12) and measured the degree of satisfaction with various parts or processes of the body. It included 47 items, but in this study we used a translated and modified 40-item version of the list included in most recent studies (13). Body characteristics were evaluated on a five-point Likert scale, ranging from strongly negative to strongly positive. Its reliability is considered to be satisfactory (14).

Self-rating scale for depression. This was a Dutch translation (15) of the self-rating depression scale developed by Zung (16). The scale included 20 items formulated either positively or negatively, which were constructed on the basis of the diagnostic criteria for depression.

Self-rating questionnaire. This was a Dutch translation of the Spielberger state-trait anxiety inventory (17). It consist of two separate 20-item parts. The state-anxiety scale measures the intensity of feelings of anxiety at a particular moment in time. The trait-anxiety scale measures a person's general tendency towards perceiving a wide range of situations as being threatening. Research has confirmed the reliability and validity of this questionnaire (18). In this study only the trait-anxiety scale was used, because our interest was focused on general problems and traits.

4.3.4 Data analyses

One-sided t-tests for independent samples were used for comparing the female and the male subjects with androgenetic alopecia. As the scores for inadequacy, social inadequacy, dominance and general psychological maladjustment were sex-dependent in the general population, these were adjusted in the analyses by calculating the difference between the actual score of the subjects and the mean score of the norm group of the same sex (10). As the female dermatological control subjects were substantially younger, ANCOVAs (analysis of covariance) were performed when comparing the female subjects with androgenetic alopecia and the female dermatological subjects for each psychological measure separately,

in which age was included as a covariant. In addition, the answers given by the groups to the questions on the hair problem/dermatological problem list, were described by percentage scores.

4.4 Results

The mean psychological characteristics of the women with androgenetic alopecia, those of the female dermatological control group and the males with androgenetic alopecia are shown in Table 1.

TABLE 1. Mean psychological characteristics of female subjects with androgenetic alopecia, a female dermatological control group and a control group of men with androgenetic alopecia (standard deviations in parentheses); and *p*-values of the differences.

Psychological characteristics	Women with androgenetic alopecia (I)	Dermatological control group (II)	Men with androgenetic alopecia (III)	*p*-values I vs. II	*p*-values II vs. III
Inadequacy	14.5 (9.8)	12.8 (9.8)	8.5 (7.5)	ns	<.10
Social Inadequacy	10.6 (6.6)	8.1 (7.1)	8.9 (6.8)	<.10	ns
Rigidity	26.3 (8.7)	22.5 (7.4)	24.6 (7.7)	ns	<.10
Injuredness	17.0 (8.6)	16.7 (7.9)	18.6 (7.9)	ns	<.10
Self-sufficiency	12.9 (6.5)	9.8 (4.2)	13.3 (5.0)	<.05	ns
Dominance	14.4 (6.1)	16.0 (5.5)	17.1 (6.1)	ns	ns
Self-evaluation	26.3 (5.3)	27.8 (5.4)	29.6 (5.6)	ns	<.001
Overall social discomfort	65.6 (17.3)	68.9 (19.2)	64.3 (17.6)	ns	ns
Overall social frequency	110.8 (20.1)	114.6 (19.8)	110.5 (16.3)	ns	ns
General psychological maladjustment (D.Q.)	17.3 (8.5)	15.7 (8.1)	11.2 (7.3)	ns	<.001
Depression scale	38.9 (9.2)	34.9 (7.9)	---- ----	ns	--
Trait anxiety	41.4 (10.6)	38.2 (10.8)	---- ----	ns	--
Self-esteem	32.2 (6.6)	33.7 (5.6)	35.7 (4.3)	ns	<.001
Body-cathexis	136.1 (22.3)	138.7 (20.9)	138.7 (20.9)	ns	ns
Hair problem/ derm. complaint list*	2.8 (0.8)	1.7 (0.6)	2.3 (0.7)	<.001	<.001

* Mean item score; ns: not significant.

The women with androgenetic alopecia were found to have significantly higher scores for self-sufficiency and the hair problem/dermatological complaint list when compared to the dermatological control group. They also had a trend towards higher scores for social inadequacy.

The women with androgenetic alopecia had significantly lower scores for self-evaluation and esteem compared to the men, and scored higher on general psychological maladjustment and the hair problem list.

In addition, the female subjects with androgenetic alopecia showed trends towards higher scores on inadequacy and rigidity and lower scores for injuredness.

The percentage scores and absolute numbers obtained from the different groups on the hair problem/dermatological complaint list are shown in Table 2.

TABLE 2. Specific problems of women with androgenetic alopecia, a female dermatological control group and a male control group with androgenetic alopecia. Absolute numbers between parentheses(*)

Hair problem/ dermatological complaint statements	Women with androgenetic alopecia(**)	Dermatological control group(**)	Men with androgenetic alopecia
Tried medical therapy	75% (43)	53% (25)	26% (43)
Compares own hair with that of others	68% (39)	-- --	51% (85)
Tried remedies	58% (33)	34% (16)	42% (70)
Worries about hair loss/complaint	54% (31)	17% (8)	11% (19)
Annoyed by jokes about hair loss/complaint	47% (27)	11% (5)	28% (47)
Feels ashamed	42% (24)	15% (7)	8% (13)
Becomes reminded of hair loss/complaint	37% (21)	6% (3)	54% (90)
Others underestimate hair problems/complaint	37% (21)	11% (5)	39% (65)
Feels less attractive	37% (21)	9% (4)	29% (48)
Discomfort in presence of men	37% (21)	6% (3)	4% (6)
Discomfort in presence of women	35% (20)	2% (1)	12% (20)
Considered a wig	33% (19)	-- --	11% (18)
Talks frequently about hair loss/complaint	30% (17)	15% (7)	8% (13)
Considered hair transplant	26% (15)	-- --	20% (34)
Goes out less	23% (13)	4% (2)	5% (8)
Little understanding from others	19% (11)	9% (4)	20% (34)
Others make hair loss/ complaint a problem	18% (10)	2% (1)	20% (34)
Feels much older	12% (7)	6% (3)	24% (41)
Less able to make contact	7% (4)	2% (1)	2% (4)
Feels excluded	7% (4)	2% (1)	1% (2)

(*) Number of subjects answering agree or strongly agree

(**) Scores of one subject are missing

More than half the women with androgenetic alopecia worried about their hair loss, and more than a third felt ashamed, and less attractive. They were often reminded about their hair loss by others and felt uncomfortable in the presence of both men and women.
The percentage scores of women with androgenetic alopecia were substantially higher for each problem when compared with those of female control subjects. The scores were also higher than those of men with androgenetic alopecia.
Nearly five times more women were worried about their hair loss than the men, and these women were more uncomfortable in the presence of men and women than males with androgenetic alopecia.
They went out less when compared with men with androgenetic alopecia.
However, the men mentioned more often that they were reminded about their hair loss and that they felt much older.

4.5 Discussion

Only a few studies are available on the social and psychological aspects of hair loss. Previous research into hair focused mainly on the interpersonal aspects and investigated the influence of an individual's physical attractiveness. It has been shown for example that blondes are expected to be less intelligent and red-heads to be less serious (19), and very hairy men to be more sexually potent (20).
In a study by Moerman (21), 49 male and 47 female respondents were asked to give scores on a picture of either a man with a full head of hair or a man with fully developed androgenetic alopecia. The bald man was rated on average 10 years older than the man with hair. In addition, the respondents rated the bald man as being more intelligent, stable and conscientious, whereas the man with hair was rated as being more attractive and agreeable.
In this study, we evaluated a sample of 58 women with androgenetic alopecia who were selected from a population of women who had previously applied for hair treatment. Therefore, generalizations have to be restricted to the clinical population.
Our results support the hypothesis that women suffering from androgenetic alopecia have more psychosocial problems than women with a dermatological complaint. They were also found to have more problems than the male subjects

with androgenetic alopecia.

The finding that considerably more women with androgenetic alopecia felt ashamed, experienced discomfort in the presence of both men and women and went out less than the men and women in the control groups, indicated that these problems were particularly associated with their social life.

The differences between the results obtained from the female and male subjects with androgenetic alopecia can partly be explained by sex differences with regard to the reporting symptoms of distress, because female subjects are less defensive about admitting to problems than male subjects (22). However, this is not a complete explanation as several complaints mentioned by the male subjects with androgenetic alopecia were to an equal or greater degree (e.g. feels much older). The visibility of androgenetic alopecia may be the crucial factor, because in women it means that they feel less feminine and in men that they feel much older.

In several studies (23,24), patients with dermatological complaints such as acne, psoriasis and eczema, reported similar problems to those found in our female subjects with androgenetic alopecia. There were also a substantial number of patients who reported problems related to their social life.

On the basis of in-depth interviews with women with androgenetic alopecia (unpublished data) it was concluded that almost 30% of the women could not cope with the problems of hair loss and were preoccupied by the negative consequences. Additionally, many patients considered that the psychological support from their general practitioner was insufficient.

In another study (25) about 50% of the patients who consulted their general practitioner with complaints of hair loss appeared to be suffering from psychological problems as well.

However, most general practitioners followed the same policy for their patients with hair loss whether they had psychological problems or not.

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CHAPTER 5

Quality of life and maladjustment associated with hair loss in women with androgenetic alopecia

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5.1 Abstract: Quality of life and maladjustment related to hair loss were studied by means of a standardized interview in a group of 58 women with androgenetic alopecia who applied for treatment at the Department of Dermatology. The hair loss was found to have a negative influence on the quality of life on the majority of them. In 88%, hair loss had negative effects on their daily life, in about 75%, the hair problems were manifested in negative self-esteem and about 50% experienced social problems. General psychosocial maladjustment in relation to hair loss was indicated in almost one third of the women.

5.2 Introduction

Compared to the gradually increasing number of studies being published on men with androgenetic alopecia (1,2,3) the lack of attention being paid to women with this affliction is remarkable.

More psychosocial problems can be expected in women than in men because a smaller proportion of women are affected, which emphasizes their deviation from the norm. Venning and Dawber (4) found that 13% out of 564 premenopausal women showed hair loss on the scalp, while in men this percentage was about 45% (5).

A second reason for expecting more psychosocial problems in women with androgenetic alopecia than in men, is that our cultural norms emphasize the relevance of physical attractiveness for women in particular.

So far, the psychological and social problems of women with androgenetic alopecia have mainly been described anecdotaly (6). Eckert (7), studied women with diffuse alopecia and found that 20% of them were suffering from severe marital problems or were overtly depressed. Van der Donk et al (8) compared women with androgenetic alopecia to women with a non-visible dermatological disorder and to male subjects with androgenetic alopecia, using standardized psychological instruments. They found elevated scores for self-satisfaction and social inadequacy in comparison with the women with non-visible dermatological complaints. In addition, the women with androgenetic alopecia scored higher on inadequacy, rigidity, injuredness and general psychological maladjustment and lower on self-evaluation and self-esteem than the men with androgenetic alopecia. Finally, they showed more psycho-social problems which they attributed to their

hair loss, than any of the other groups.
The present study is a continuation of the previous one by Van der Donk et al (8) and explores the character and extent of psycho-social problems related to androgenetic alopecia in the aforementioned 58 women with androgenetic alopecia more deeply, in order to assess the influence of hair loss on their quality of life.
As the sensitivity of standardized generic quality of life instruments, such as the Nottingham Health Profile, is highest mainly in the severe range (9), data were collected via in-depth interviews.
The use of an interview method also gives detailed information on the situations in which the problems are experienced, which can be used for behavioral management.
As this study was concerned solely with problems which can be attributed to androgenetic alopecia, no control group was included.

Our study questions were:

1. What problems exist in various life areas in the women with androgenetic alopecia who applied for treatment?
2. How many women with androgenetic alopecia show general psychosocial maladjustment which is attributable to androgenetic alopecia?

5.3 Methods

5.3.1 Subjects

Subjects who applied for treatment for their hair loss at the Dermatology Department of the University Hospital Rotterdam-Dijkzigt and the Free University Hospital in Amsterdam, were invited by letter to participate in a double-blind clinical trial. The trial had the purpose of investigating the effect of 2% minoxidil lotion treatment and will be published elsewhere.
From the respondents, 70 healthy, dark-haired women, between 18-45 years of

age with a minimum duration of hair loss of six months, were selected by dermatologists (K.J.K.J, C.N), on the basis of the following criteria for female pattern alopecia:
(1) diffuse thinning in the fronto-parietal area of the scalp, both with or without temporal recession,
(2) grades I and II according the Ludwig scale (10).
Subjects were assigned at random, in a double-blind fashion, to either a 2% minoxidil lotion treatment group or to a placebo treatment group.
Of the 70 women who met these criteria*, 58 agreed to participate in our psychological study, resulting in a response rate of 83%.
The protocol of the study was reviewed and accepted by the Medical Ethics Committee of the University Hospital Rotterdam-Dijkzigt. The subjects received a small reward for their invested effort (equivalent of US $ 5).

5.3.2 Procedure

The data were collected using an interview with questions related to the significance of hair, the problems resulting from hair loss and psychosocial maladjustment. The interview was held in the 9th month of the medical study and had a retrospective character, i.e. the questions referred to the situation one month before the start of treatment. It took about half an hour and was carried out at the Dermatology Department by a trained female psychologist (J.A.M.H) in view of the possibility of specific female problems.

* For the clinical trial, the applicants also had to have: a normal menstrual history for their age and show no abnormalities on the following tests: physical examination (including normal pelvic examination and cervical cytology conducted within six months prior to the start of the treatment), gynaecological, electrocardiogram, echocardiogram, chest X-ray and laboratory evaluations (haematology, serum biochemistry and urine analysis). Subjects with hypertension (> 140/90 mmHg); scalp disease; abnormal ovarian function and/or evidence of ovarian enlargement; a history of cardiac, renal, hepatic, or endocrine disease; and those using cytotoxic agents, corticosteroids, antihypertensive, peripheral vasodilatory, bronchodilatory, antiepileptic medications and hair restorers, were excluded from the medical part of the study. Also excluded were applicants with clear-cut psychiatric symptoms, those who were unable to follow or understand the study instructions, those with light coloured, advanced gray, dyed and/or extremely curly hair.

5.3.3 Instruments

The interview consisted of two parts and was semi-structured. It was based on the experience gained during the explorative interviews with subjects with androgenetic alopecia in the pilot phase of the study. The first part consisted of open questions on the main life areas so that the subject could bring forward topics which were related to hair loss. A written report on this part of the interview was made afterwards for later analysis.
The second part of the interview consisted of a number of closed questions, in particular about the subject's behaviour and feelings in specific situations. These situations were adopted from the pilot phase of the study and were only presented to the subject if they had not already been discussed in the first part of the interview.

5.3.4 Data analyses

To answer the first research question on the effect on quality of life, the answers were analyzed descriptively by frequency counts of the psychological problems. For the second research question on the general psychosocial maladjustment of the women, the written records were analyzed to review the women's adjustment to their hair loss. Two independent judges (J. v d D., J.P.) classified the adjustment into (1) adaptive and (2) maladaptive adjustment. They used the following operationalizations:
1) good adjustment to hair loss was expressed by the absence of any general effect of the hair loss on the subject's feelings and her participation in daily activities. A number of specific negative aspects related to hair loss could be present. In addition, the adjustment led to positive expectations of the subject about the future.
2) maladjustment to hair loss was expressed by preoccupation with the negative aspects of hair loss, leading to manifold unpleasant and troubled feelings and to the avoidance of normal daily activities. Furthermore, it led to negative expectations about the future.
On the basis of this classification, the subjects were divided into three categories

by the judges: A) predominantly well-adjusted subjects, B) predominantly maladjusted subjects and C) subjects who showed both well-adjustment and maladjustment without an overall predominance of either one.

The agreement between the judges on the classification of the women according to their adjustment was 86% initially. After sharpening of the criteria, the remaining 14% were discussed again resulting in an agreement of 94%. There was no concordance in 6%.

5.4 Results

5.4.1 Subject characteristics

The characteristics of the subjects are shown in Table 1.

TABLE 1. Characteristics of women with androgenetic alopecia

Characteristics	M (SD)	N	%
Age (in years)	36 (6.6)		
History of hair loss (in years)	12 (7.5)		
History of visible hair loss (in years)	9 (7.0)		
Marital status(*)			
-with a partner		36	63%
-single		12	21%
-divorced		8	14%
-widow		1	2%
Educational level			
-low (secondary education or less)		15	26%
-high (more than secondary education)		43	74%

(*) Characteristics of one subject are missing

5.4.2 Quality of life

Table 2 shows the frequency and percentage of psychosocial problems mentioned during the interview and categorized by life area. In the following paragraphs, the content of the table is clarified by presenting typical statements made by the subjects in each life area.

TABLE 2. Psychosocial problems associated with hair loss: number of responses and percentage for each life area and response category

Life area and response category*)	absolute number of responses**)	%
Attitude to hair and hair loss	54	93
- hair forms an expression of oneself	36	62
- major factor in female appearance	22	38
- hair loss is a handica	9	16
Negative effects on self-esteem	42	72
- less attractive	33	57
- reduced confidence	31	53
- uncertainty	19	33
- shame	15	26
- inferiority complex	12	21
- feeling old	7	12
Negative activities in daily life	51	88
- conceals hair loss	40	69
- takes more care	35	60
- pays much attention to the hair of others	17	29
- takes care where to sit	13	22
- goes out less or stays at home	10	17
Negative feelings during social contact	28	48
- is worried	15	26
- is afraid of remarks about hair loss	9	16
- inhibited	7	12
- inferiority complex	4	7
- is jealous of others	4	7

*) subjects could give more than one answer
**) responses given by fewer than 5% of the subjects are not mentioned in this table

5.4.3 The attitude to hair and hair loss

More than 62% of the subjects felt that hair is an important aspect of physical appearance and/or an important means of self-expression. This was illustrated by statements such as: *'If you are employed as some sort of representative, you can't go round with wispy, thin hair or bald spots.' 'My hair loss forces me to wear a timid hair-style, but I feel much wilder inside.' 'A wife without hair is no real wife for a man.' 'If I had beautiful hair, it might give me more self-confidence and then I wouldn't need to be so uncivil to everyone'.*
For 16% of the women, hair loss formed a physical handicap and they wished to be released from the wig or prothesis which they regarded as an artificial part of their body.

5.4.4 Negative effects on self-esteem

In most of the women (72%), the hair loss affected their self-esteem in a negative way. This was expressed in terms of decreased self-confidence, in uncertainty, shame, feelings of inferiority and feeling old. Over half (57%) felt less attractive as a result of the hair loss.

5.4.5 Negative activities in daily life

The hair loss affected the behaviour of a large proportion of the women (88%). They felt restricted and adopted a variety of precautionary measures in relation to their hair loss. Several subjects said that they were tense in shops and other public places and, for instance, suffered from neck cramp from holding up their head to prevent others from discovering the hair loss. One subject told us that she always pays cash so that the cashier cannot see her head while she writes a cheque. Most women preferred not to go swimming and stayed at home when it was raining or very windy. Walking in the sun appeared to be at least as equally distressing, *'because the sun shines through your hair and burns your head'*. But indoors, the hair loss could be troublesome as well: *'If I notice that my hair is untidy, I avoid getting involved in a dispute'*.

Many women tried to hide their hair loss (69%) by frequent washing, drying, or cutting and sometimes they rubbed the scalp with powder in order to make it less discernible from the hair. One woman said, *'I wear a headscarf to hide my hair loss and not for a religious reason'*. Nearly one third of the women stated that they frequently looked at other women's hair and 17% said that they avoided going out, especially when they had started to lose their hair. Twenty two per cent of the women avoided particular locations, such as places with strong illumination, the centre of a terrace where the sun shines brightly, or the centre of a room were other people might see the top of their head.

5.4.6 Negative feelings during social contact

For 48% of the subjects, the hair loss formed a problem socially. More than a quarter felt worried that others would see the thinning patches: *'I always feel nervous in company because I feel like I have a large, round bald spot on my head'*.
One out of every seven women was afraid that others would make remarks about the hair loss: *'I keep quiet particularly at work, because the moment they make a remark about my hair, I feel very small'*.
The women felt offended by jokes or remarks about their hair loss and found them very improper, such as: *'Hey, old woman'* or *'I can see your scalp!'*. For most of the women it was important who made these remarks. A number of them used to crack cynical jokes about themselves, such as: *'Any punk would be jealous. I hardly need to do anything to get this hair-style'*.

5.4.7 Adjustment

The written reports showed that 36% of the subjects were predominantly well-adjusted regarding coping with their hair loss. This approach was illustrated by one of the women in the following words:
'In company I am usually more worried about being in a bad mood than about my hair loss. Of course, suddenly having thoughts about the hair loss can soon change that. As such, the hair loss isn't that much of a problem to me. It doesn't

automatically mean that I would start thinking about a wig if I was to go bald - I regard my hair as a means of distinguishing myself from others. Neither is it my intention to use some sort of medication for the rest of my life against hair loss. I prefer to spend my money on other things'.

The reports also showed that 29% of the women were predominantly maladjusted regarding their hair loss. One of them told us, for example: *'In company I always feel that other people are looking at me all the time and I hate that. That is why I prefer to stay at home. I've never been what you might call attractive, but now with my hair like this, it's even worse. A woman without hair isn't really a woman anymore. And if I wasn't already aware of that, the other people around me would soon let me know!*

So, I am afraid that I will go completely bald. I think that if my hair doesn't stop falling out, I will go down hill very fast psychologically'.

Both well-adjustment and maladjustment were observed in 29% of the women. The general trend in these cases was, for instance: *'I always feel worried in company and I am afraid that my wig won't stay straight. But when I get chatting, the feeling disappears. The looks other people give me make me terribly annoyed and as soon as they start talking about their own hair-styles, I run for cover!*

I have always felt unattractive and fat even as a child and when I started to lose my hair too, I wouldn't go out to play anymore. I locked myself in and began to eat. But nowadays I wear a wig and have the courage to go out again. Perhaps I will try hair fusion some time. A new wig really boosts my self-confidence. Luckily, I am a cheerful person'.

5.5 Discussion

Scalp hair plays a major role in determining physical attractiveness and is an important aspect in interpersonal contact, as it is the first and most directly visible source of non-verbal information (11,12). Scientific studies have demonstrated that individuals who are rated as being physically attractive are thought to be more successful (13), to enjoy more respect (14), to have more friends, to be more happily married (15) and to be socially better adjusted

(16) than less physically attractive individuals. Physical attractiveness also seems to have intrapersonal consequences, as indicated by the positive correlation with self-esteem and the negative correlation with neuroticism (17).
Studies on individuals who think themselves physically unattractive, were almost exclusively conducted on clinical populations. Van Keep (18) reported that the majority of the subjects in his study with a visible dermatological disorder avoided social contact and lost touch with acquaintances and friends. Baardman (19) found that nearly 20% of the clients at a clinic for neurosis were negatively preoccupied by their appearance, which caused social avoidance behaviour, poor physical hygiene, etc. In brief, feelings of physical unattractiveness seem to be related to many negative psychosocial aspects. These negative aspects were also found in this study on women who applied for treatment for androgenetic alopecia.
A large number of the women in this study experienced a negative effect on their quality of life as a consequence of this affliction. These problems manifested themselves in the effort taken to hide the hair loss, in their taking care where to sit and in avoiding company and activities, in inhibited behaviour, feelings of envy, lost self-confidence and feelings of insecurity in company. Most of them had sought help for their androgenetic alopecia: the majority had consulted their general practitioner or a dermatologist. In general, they considered the care offered to be insufficient. For this reason, many of the women felt powerless and referred to their worries about the cause and possible progressive nature of the hair loss as most unpleasant. A possible case in point was that three women in our study group considered their hair loss to be comparable with a physical impairment, such as the loss of a limb.
The psychosocial problems of the women with androgenetic alopecia in this study appeared to be comparable with the psychological problems of individuals with a (visible) dermatological disorder, such as acne, eczema and psoriasis. The social life of 40% of the individuals with one of these dermatological disorders was affected by the disorder (20), whereas in our group this percentage was 50%.

Adjustment

It was striking that 29% of the women in our study group were unable to cope with their androgenetic alopecia and experienced severe maladjustment. Furthermore, 36% of the women were predominantly well-adjusted and 29% showed both well-adjustment and maladjustment.

While general practitioners in the Netherlands reported that 50% of the patients who presented with androgenetic alopecia had psychological problems, they nevertheless used the same policies for patients with and without psychological problems (21). The authors of this study conclude that many patients with androgenetic alopecia do not receive sufficient psychological support from their general practitioner in a psychological respect. As patients with androgenetic alopecia primarily seek help and comfort in the medical field, psychological support such as information, emphatic listening and behavioural advice regarding the above problems, ought to be supplied by the general practitioner and the dermatologist.

The question arises as to whether the problems and adjustment of the women with androgenetic alopecia in this study can be extrapolated to the general population of women suffering from this affliction. A further epidemiological study on a non-clinical group of women with androgenetic alopecia might help to find the answer to this question.

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CHAPTER 6

General discussion

6.1 Introduction

Although androgenetic alopecia is not usually experienced as a direct threat to health, a considerable number of men and women with this complaint consult either their general practitioner or the dermatologist. This presumably means that apart from the loss of hair one has become anxious: "Perhaps there is something wrong with me". According to Lamberts (1), in the general practice in 1984, there were approximately 4 such cases in every 1000 cases with a men to women ratio of 1 : 2.6. However, it may well be that these data are outdated. Moreover, these data were compiled during the period in which it was generally assumed that androgenetic alopecia was irreversible. Therapeutically, little help could be offered to these patients. As a result, patients with this complaint either accepted it as their fate or turned to those offering help from outside the medical profession (2).

Perhaps, the introduction of 2% minoxidil revived the interest in baldness. This was indicated by the response of more than 8000 men with hair loss who replied to an advertisement in several Dutch newspapers calling for participants for a clinical trial to investigate the effects of 2% minoxidil for stimulating regrowth of hair. Possibly, this interest also points to the psychological effects of hair loss which were till then not openly displayed.

De Koning et al (3) investigated the psychological problems and the policy of the general practitioners towards management of hair loss reported that according to their general practitioners almost 50% of the patients who had consulted them because of their hair loss also had psychological problems. It was also notable that the general practitioners had the same policy towards the management of patients with and without psychological problems. The results of the study also showed that therapeutically, the psychological problems of individuals with androgenetic alopecia were underestimated.

In this study, it has already been mentioned several times that very limited scientific research has been conducted into the psychosocial problems of individuals with androgenetic alopecia. In general, the available knowledge concerning these problems has come from the popular literature which can be separated into two types according to their contents. In broad lines, the first type

consists of articles with intruding reports on the psychosocial problems of individual patients with androgenetic alopecia. The second type comprises speculative presuppositions describing the problems in general terms without any basis of prior controlled investigations. The information of these articles is, therefore, of very limited scientific value.

It is remarkable that very few scientific studies are available, whereas much attention has been focused on the outer appearance in general and on hair in particular. As mentioned in the first chapter, the protective function of hair seems to have been more or less lost, but at present the social function of hair remains in the foreground (4). The limited scientific attention for the psychosocial problems of androgenetic alopecia is also remarkable considering that almost half of the Dutch male population and indeed a limited, but notable number of women at any given moment are confronted with hair loss. It is possible that the limited attention is caused by lack of treatments for androgenetic alopecia and patients "just have to learn to live with their hair loss".

This gap in the scientific knowledge also spurred us to investigate the occurrence of psychosocial problems in individuals with androgenetic alopecia who presented for treatment. At the same time, investigations were also conducted in a male population at a general practice to establish whether men with androgenetic alopecia generally experienced problems.

During the preliminary phase of the investigations, it not only appeared that there were very few scientific studies available on the psychosocial problems of androgenetic alopecia, but that there was also a gap in the area of theoretical knowledge. In the field of psychology, to date, only Berg (5) has explicitly concentrated on formulating theory concerning hair and hair loss.

Based on the findings by Koning et al (3) and the above mentioned concourse of patients, we had initially expected that there would be problems in men and certainly in women with androgenetic alopecia. These problems might have their precipitation, among others, in general psychological problems and possibly also in a different personality. Our findings turned out to be different from the ones we had expected and are discussed below.

6.2 Results concerning the psychosocial problems of men with androgenetic alopecia

The results showed that there were several differences between the personality characteristics of a group of men with androgenetic alopecia and a control group. In general, with the psychological instruments that were used in this study, the results were either normal and if there were differences, they were scored more favourably for the group of men with androgenetic alopecia. Thus, men with androgenetic alopecia who presented for treatment were less neurotic, more flexible, more dominant and had more self-esteem. The problems they experienced were mainly concentrated on lack of hair.

These results are comparable with those reported by Cash (6), who found no significant differences in personality functioning between men with and without hair loss.

The findings on the specific problems concerning hair in men with androgenetic alopecia showed, among others, that more than 50% of the men declared at the beginning of the study that they were reminded of their baldness by others and often compared their hair with that of others. Almost 30% of the men felt less attractive and were annoyed by jokes concerning their baldness, whereas 20% of the men with androgenetic alopecia in our study had considered hair transplantation.

The problems within the clinical group were more confined than expected. This could have been due to a biased selection; men with androgenetic alopecia were invited to participate in the investigations to examine the effects of 2% minoxidil. Psychologically, this form of selection could have attracted more "adventurers" than those who presented spontaneously without an invitation. Moreover, it may be that hair also has a binding effect whereby other problems are pushed aside "if the problem of baldness was solved, then all would be well".

A study in the general population was conducted in order to study the possible effects of selection. In this study, the psychological characteristics and the specific problems concerning hair loss in men with androgenetic alopecia were compared with those in a group of men without androgenetic alopecia and a group of men with androgenetic alopecia from the clinical trial. The results

showed that the men with androgenetic alopecia who had enrolled in the clinical trial had more specific problems concerning hair loss, were less rigid and had less hair satisfaction than men with androgenetic alopecia in the general population. These results supported the assumption that there had been a selection effect.

6.3 Results concerning the psychosocial problems of women with androgenetic alopecia

With the back-ground knowledge that the psychological problems in men were more confined than those which had been expected, we conducted investigations into a group of women with androgenetic alopecia who had spontaneously presented for treatment at the Department of Dermato-Venereology of the University Hospital Rotterdam-Dijkzigt. These investigations were divided into two separate studies.

Initially, the psychological characteristics of these women were compared with those in a group of women with hidden dermatological afflictions and with those in the previously mentioned group of men with androgenetic alopecia from the clinical trial.

The results showed that, after adjustment for sex-dependent scores in the general population, women with androgenetic alopecia had more problems concerning hair, had lower self-esteem and had more neurotic problems than men with androgenetic alopecia. It has to be emphasized that the trait measure of neuroticism indicate how a patient's score on a personality trait relates to that of the average population. Enhanced neuroticism scores in patients with androgenetic alopecia do not mean that they require psychotherapeutic treatment (although a subgroup of them may need it).

Shame for their baldness was cited as a complaint more than five times as frequently by women than by men with hair loss. Moreover, five times as many women as men were seriously worried about their hair loss. Considerably more women than men with androgenetic alopecia seeked medical help for their hair loss and declared that they felt less at ease both in company of men and women. When the group of women with androgenetic alopecia were compared with the

group of women who had hidden dermatological afflictions, it appeared that the former group was more egoistic and experienced more specific problems related to their particular affliction. More than three times as many women with androgenetic alopecia than women with hidden dermatological afflictions were worried about their condition, almost four times as many felt less attractive, were annoyed by jokes concerning their affliction and felt less at ease in company of others.

These results not only supported the assumption that psychologically, women with androgenetic alopecia suffered more than men, but that thereby, the appearance of their affliction played an important role.

Both in men and women with androgenetic alopecia, the problems concerning hair loss were strongly related to their social life.

The second study in women with androgenetic alopecia involved an exploration into their psychosocial problems by means of a semi-structured interview. At the same time, adjustment strategies used by these women to cope with their hair loss were also investigated. More than 70% of the women declared that their self-esteem had been eroded by hair loss and an independent assessment of the interviews showed that almost 30% of the women with androgenetic alopecia had a predominant maladjustment to hair loss which was expressed as preoccupation with the negative aspects of hair loss, social avoidance and a pessimistic future perspective.

6.4 Conclusive remarks and recommendations

In the studies described, we have concentrated on investigations into the psychosocial aspects of androgenetic alopecia in men and women who presented for treatment.

The results of these studies indicated that particularly many women were worried about their hair loss. These worries were mainly concerned with lack of hair and were for the major part related to their social surroundings. Thereby, the appearance of androgenetic alopecia played a great role.

In general, women with androgenetic alopecia had more problems than men. Women worried more, felt less at ease in company of others and were more ashamed of their hair loss than men. At the same time, it seemed that women

with androgenetic alopecia had less self-esteem and more neurotic problems. Maladjustment to hair loss was noted in a considerable proportion of these women. The occurrence of more general psychological problems in women as compared with men with androgenetic alopecia was also illustrated by the correlations between these psychological variables and the total score of the hair problem list (appendix 2).

Although we stated at the beginning of this chapter that hair loss in general was not experienced as an affliction of one's health, fundamentally hair loss starts as a medical problem. As a physical affliction with an unclear cause and the absence of additional physical symptoms, it may lead to a state of mental confusion. Similar to other afflictions with unknown causes, it could lead to anxiety and worry about its relevance in health (7,8).

Scientific knowledge on the psychosocial problems of androgenetic alopecia appeared to be very limited. The studies described in this thesis were mainly focused on the occurrence of overt problems in men and women with androgenetic alopecia. In these investigations we did not focus on the question "why" baldness may cause problems. Theory concerning hair loss is limited. To our knowledge, only Berg (5) has formulated a theory concerning hair and hair loss. According to this author, there is a conflict between the unconscious and a repressing force of the super-ego. This conflict is manifested as a conflict between the inclination of exhibitionism and anxiety for rejection. On the one hand, there is the tendency to display the hair as if this it is the only form of exhibitionism permitted by society and on the other hand, there is the fear for hair loss as a displacement of rejection. Although this hypothesis was not studied, some aspects of this theory may be of great interest for future research.

Loss of hair may also be regarded as causing a decline in physical attractiveness. In the present society, there are certain created, but undefined norms for beauty and attractiveness. Both men and women with androgenetic alopecia deviate from these norms because their affliction is visible. These implicit norms may differ in different cultures and are also subject to variations (9).

Investigations into physical attractiveness have generally concentrated on the face and its parts such as the nose, the eyes and the mouth. Studies have shown that after the mouth, the eyes and the shape of the face, hair was the next most important feature in determining physical attractiveness (10,11). Physically

attractive individuals receive more positive evaluations than those who are less physically attractive. Men and women may experience hair loss as a decline in their physical attractiveness followed by a negative (self) evaluation. Overall, physical attractiveness is more consequential for the evaluation of females than it is for the evaluation of males (12). This may be a partial explanation for the difference in the problems between men and women with androgenetic alopecia. But, although much knowledge has been gained about physical attractiveness, the knowledge remains fragmented and scattered. A theory on physical attractiveness is lacking (13).

Besides the previously mentioned theory of Berg, the attribution theory (14) appears to be promising as a model for investigating the problems concerning hair loss.

The attribution theory involves the manner in which the observers attempt to identify the causes of events which they have observed. It attempts to answer the questions as to how one establishes the causes from the events, what causes one attributes to the events and which consequences the attributions do have. It assumes a need to understand the cause and effect relationship and attempts to predict these.

Since in various sub-areas there are different theories which are difficult unify, Kelly and Michela (15) have constructed a model in which a part of the theories has been accommodated. In this model, only those theories are therefore selected which are focused on the attributions by the observer of the external or internal causes of pleasant or unpleasant events which the observer has witnessed. According to this model, attributions are formed on the basis of information, experiences and expectations which in turn have an influence on behaviour, emotions and expectations. The attributions can be persistent and unrealistic due to the strongness of the eliciting need.

Kelly and Michela concluded that there were only a limited number of studies available in which the behavioural consequences of attributions were investigated. The relationship between attributions and behavioural consequences concerning the problems in individuals with hair loss would appear to be important.

In terms of the attribution theory, hair loss is possibly seen as the cause of other problems: "The most prominent problems would be solved if I have more hair". The overwhelming response to the invitation for participation in the clinical study

can be conceived as its behavioural consequence of such attribution.
The unrealistic character of the attribution might be indicated by the results described in chapter 3. The results showed that the generally subjective "regrowth of hair" was neither associated with a decrease in the specific problems concerning hair loss nor with any psychosocial improvements.

6.5 Recommendations for future research

Our studies have provided further insight into the nature and scale of the psychosocial problems in individuals with androgenetic alopecia.

Additional research into the specific and psychosocial problems in the clinical populations with androgenetic alopecia is necessary. Such research should be specifically directed at individuals who suffer due to their hair loss. Our findings indicate that additional research in women and in a subgroup of men with androgenetic alopecia is warranted. These investigations should not only be directed at establishing the scale of the problems, but should also address the cognitive processes underlying the problems associated with hair loss. Why do certain individuals have problems concerning hair loss, whereas others have no problems.

Although our investigations were confined to men and women who satisfied the inclusion criteria, including age, investigations in men who were excluded from the clinical studies because of their age, is necessary. It is expected that it is in particular in the young group that problems related to hair loss could occur.

Investigations embracing the theoretical concepts mentioned in the previous paragraphs would be very fruitful.

On the one hand, elements of Berg's theory can be investigated with the aid of instruments that measure psychological concepts, such as unconscious anxiety of rejection. On the other hand, investigations with regard to the attribution theory in which emphasis is placed on the possible cognitive processes underlying the problems concerning hair loss would provide important information.

6.6 References

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CHAPTER 7

Summary

In this thesis, investigations into the psychosocial problems in men and women with androgenetic alopecia are described. During the preliminary phase of a clinical trial to investigate the effect and safety of 2% minoxidil as hair regrowth stimulator, a large number of volunteers declared that they had psychosocial problems as a result of their hair loss. This, among others, led us to initiate an investigation into the psychosocial aspects of androgenetic alopecia.

In chapter 1, a historical review on the importance and the social and symbolic meaning of hair is presented. From this review it is apparent that through the centuries hair has played an important role in the life of man. This importance is also expressed in the symbolism of hair. However, inspite of the attention that man has paid to hair and hair loss in the past and inspite of the sometimes abundant interest expressed in hair in recent years, it appeared that the scientific knowledge on the psychosocial problems concerning hair loss was extremely limited. A large proportion of the knowledge concerning these psychosocial problems was derived from articles in the popular literature. Investigations concerning the physical attractiveness of individuals have also been dealt with in this chapter. Inspite of the large number of studies on the physical aspects of man in relation to his social surroundings, it appeared that these studies were mainly aimed at investigating the influence of physical attractiveness. The scientific interest for the physically less attractive was very limited. Investigations into the consequences of low physical attractiveness were mainly conducted in patients with a dermatological affliction. The sometimes far-reaching consequences of declined physical appearance were obvious from these studies. In a survey of literature concerning hair and hair loss, the communicative aspects of hair and the effects of hair loss have been discussed. The only to date known theory on hair loss is described at the end of this chapter.

An account of the investigations into the psychological characteristics of men with and without androgenetic alopecia in the general population is presented in chapter 2. At the same time, specific problems concerning hair in men with type III vertex and type IV androgenetic alopecia were also investigated. The results showed that men with androgenetic alopecia in the general population had no abnormal psychological characteristics, were less satisfied with their hair than the

men without androgenetic alopecia, but they were more satisfied than the men with androgenetic alopecia who participated in the clinical trial.

In chapter 3, investigations into the personality characteristics and the occurrence of specific problems concerning hair loss in men with androgenetic alopecia who participated in the clinical trial are described. Several significant differences were observed when the personality characteristics of a group of men with androgenetic alopecia were compared with those of men in a control group. Where there were differences, men with androgenetic alopecia scored more favourably than men in the control group. Problems concerning hair loss were noted in a considerable number of men with androgenetic alopecia.

In chapter 4, the psychological characteristics and the specific problems concerning hair loss in a group of women with androgenetic alopecia were compared with those in a group of women with hidden dermatological afflictions and with those in a group of men with androgenetic alopecia. The women with androgenetic alopecia had a lower self-esteem and increased general psychological problems than men with androgenetic alopecia. These women also had increased specific problems concerning hair loss. The women with androgenetic alopecia scored higher in certain psychological characteristics than the women with hidden dermatological afflictions; they were more self-sufficient and experienced more specific problems that were related to their particular affliction than the women with hidden dermatological afflictions.

Extended investigations of studies described in chapter 4 are presented in chapter 5. The quality of life and the adjustments to hair loss in women with androgenetic alopecia were investigated using standardized interviews. The quality of life in the majority of the women was negatively influenced by hair loss. In addition, maladjustment to hair loss was noted in almost one-third of these women.

A general discussion on the results of investigations described in this thesis together with proposals and recommendations for future research are presented in chapter 6.

CHAPTER 8

Samenvatting

Dit proefschrift geeft een beschrijving van onderzoek naar de psychosociale problematiek van mannen en vrouwen met alopecia androgenetica. Tijdens de voorbereidingen van een klinisch onderzoek naar de effectiviteit en veiligheid van 2% minoxidil als haargroeistimulator, gaf een groot aantal vrijwilligers aan dat zij psychosociale problemen hadden door hun haarverlies. Een en ander was de aanleiding om onderzoek te starten naar de psychosociale aspecten van alopecia androgenetica.

Hoofdstuk 1 geeft een historisch overzicht van het belang en de sociale en symbolische betekenis van hoofdhaar. Hieruit blijkt dat hoofdhaar door de eeuwen heen een grote rol gespeeld heeft in het leven van de mens. Dit belang komt mede tot uiting in de symboliek van haar. Echter, ondanks de aandacht die men in het verleden had voor haar en haarverlies en de soms overvloedige belangstelling van de laatste jaren blijkt dat er een zeer beperkte wetenschappelijke kennis bestaat met betrekking tot de psychosociale problematiek. Een groot deel van de kennis met betrekking tot deze psychosociale problematiek van haarverlies is gebaseerd op artikelen uit de populaire literatuur. Tevens wordt er in dit hoofdstuk ingegaan op onderzoek met betrekking tot de fysieke aantrekkelijkheid van individuen. Ondanks de grote hoeveelheid studies die verricht zijn met betrekking tot de fysieke aspecten van de mens in relatie tot zijn sociale omgeving, blijken deze studies vooral gericht te zijn op de invloed van fysieke aantrekkelijkeid. De wetenschappelijke aandacht die er bestaat voor fysiek minder aantrekkelijke personen is zeer beperkt. Onderzoek naar de consequenties van een minder aantrekkelijk uiterlijk zijn veelal uitgevoerd bij patienten met een dermatologische aandoening. Uit deze studies blijken de soms verstrekkende gevolgen van een aangetast uiterlijk. In een overzicht van studies met betrekking tot haar en haarverlies worden de communicatieve aspecten van haar en de effecten van haarverlies beschreven.

Tot slot wordt, de enige voor zover bekende theorie over haarverlies beschreven.

In hoofdstuk 2 wordt verslag gedaan van onderzoek naar de psychologische karateristieken van mannen met en mannen zonder alopecia androgenetica in de algemene populatie. Tevens wordt bij de mannen met type III vertex en IV alopecia androgenetica, de specifieke haarproblematiek onderzocht. De resultaten

laten zien dat mannen met alopecia androgenetica uit de algemene populatie geen abnormaal psychologische karakteristieken hebben, minder tevreden zijn met hun haar dan de mannen zonder alopecia androgenetica, maar meer tevreden dan de mannen met alopecia androgenetica uit een klinische studie.
In hoofdstuk 3 wordt een studie beschreven naar de persoonlijkheidskenmerken en het voorkomen van specifieke haarproblematiek bij mannen met alopecia androgenetica die zich aangemeld hebben voor klinisch onderzoek. Een aantal significante verschillen worden waargenomen als we de persoonlijkheids kenmerken van mannen met alopecia androgenetica en die van een controle groep vergelijken. Daar waar er verschillen zijn scoren de mannen met alopecia androgenetica gunstiger dan de mannen uit de controle groep. Specifieke haarproblematiek wordt bij een substantieel aantal mannen met alopecia androgenetica vastgesteld.
In hoofdstuk 4 wordt verslag gedaan van de psychologische kenmerken en de specifieke haarproblemen van een groep vrouwen met alopecia androgenetica en vergelijken de uitkomsten met die van een groep vrouwen met een niet-zichtbare dermatologische aandoening en een groep mannen met alopecia androgenetica. De vrouwen met alopecia androgenetica hebben minder zelfwaardering en meer algemeen psychologische problematiek dan mannen met alopecia androgenetica. Tevens hebben de vrouwen meer specifieke haarproblematiek. De vrouwen met alopecia androgenetica scoren hoger op een aantal psychologische kenmerken dan de vrouwen met een niet-zichtbare dermatologische aandoening; zij zijn meer zelf-genoegzaam en ervaren meer specifieke problematiek die gerelateerd is aan hun aandoening dan de vrouwen met een dermatologische aandoening.
Hoofdstuk 5 is een verslag van een studie welke een verdieping is van de studie die beschreven is in hoofdstuk 4. Door middel van gestandaardiseerde interviews worden de kwaliteit van leven aspecten en de aanpassing aan het haarverlies van vrouwen met alopecia androgenetica onderzocht. De kwaliteit van leven wordt bij het merendeel van de vrouwen op een negatieve wijze beinvloedt door het haarverlies. Tevens blijkt dat bij bijna een derde van de vrouwen gesproken kan worden van een maladaptieve aanpassing aan hun haarverlies.
Hoofdstuk 6 bevat een algemene discussie van de in dit proefschift beschreven studies. Tevens worden aanbevelingen gedaan voor toekomstig onderzoek.

Questionnaire concerning hair loss

Please encircle for each statement the number of the answer that conforms best with your opinion.

	STRONGLY AGREE	AGREE	MORE OR LESS AGREE	DISAGREE	STRONGLY DISAGREE
Because my hair loss:					
1. I feel less comfortable in company of men.	1	2	3	4	5
2. I feel less comfortable in company of women.	1	2	3	4	5
3. I feel less able to make contact with others.	1	2	3	4	5
4. I feel excluded.	1	2	3	4	5
5. I go out less than I would like to.	1	2	3	4	5
6. I feel less attractive.	1	2	3	4	5
7. I feel much older than others in my agegroup.	1	2	3	4	5
8. I have seriously considered a hair transplantation	1	2	3	4	5
9. I have seriously considered a hair piece.	1	2	3	4	5
10. I feel ashamed because of my baldness.	1	2	3	4	5
11. Before I started this study I have tried medical therapy.	1	2	3	4	5
12. I worry a lot about my baldness.	1	2	3	4	5
13. I have tried other remedies (e.g. lotions & special shampoos) to prevent my hair loss.	1	2	3	4	5
14. I notice little understanding from others for my baldness.	1	2	3	4	5
15. I often am reminded of my baldness when others first begin talking about it.	1	2	3	4	5
16. Especially others make that baldness is a problem for me.	1	2	3	4	5
17. I often talk to someone about my baldness.	1	2	3	4	5
18. Others underestimate the problems of hair loss.	1	2	3	4	5
19. I often compare my own hair with that of other men of my agegroup.	1	2	3	4	5
20. I get annoyed when others makes jokes on my baldness	1	2	3	4	5

APPENDIX 2

Correlations between the psychological characteristics and the total score of the Hair problem list of patients with androgenetic alopecia from a clinical study and a group of men with androgenetic alopecia from the general population.

Psychological characteristics	Women (N=57)	Men (N=168)	General pop. (N=59)
Inadequacy	.51**	.20*	.31*
Social inadequacy	.45**	.18	.24
Rigidity	.23	.13	.13
Injuredness	.44**	.35**	.24
Self-sufficiency	.02	.05	.18
Dominance	-.17	.03	-.12
Self-evaluation	-.22	-.06	-.15
DQ	.41**	.27**	.35*
IOAS	.44**	.22*	.07
IOAF	-.42**	-.16	.03
Self-esteem scale	-.60**	-.31**	-.24
Body-cathexis list	-.41**	-.16	-.10
ZUNG	.51**		
STAI	.49**		

* p = .01 ** p = .001

DQ = General psychological maladjustment, IOAS = Overall social discomfort, IOAF = Overall social frequency, ZUNG = Depression, STAI = Trait-anxiety

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CURRICULUM VITAE

Adrianus (Jos) van der Donk werd geboren op 20 januari 1954 te Utrecht.
Na een 7-jarige technische opleiding vervulde hij in de periode 1974 - 1976 zijn militaire dienstplicht. In 1976 begon hij na een "major life-event" (auto-ongeval) met een schriftelijke middelbare schoolopleiding. Van 1979 tot 1982 studeerde hij in de avonduren voor het VWO diploma wat hij in 1982 behaalde. Hij ging in 1982 psychologie studeren aan de Rijks Universiteit te Utrecht. In december 1987 voltooide hij deze studie met het doctoraal examen in de hoofdrichting klinische psychologie.
Van 1987 tot 1991 was hij werkzaam op de afdeling Medische Psychologie en Psychotherapie van de Erasmus Universiteit te Rotterdam, na 1991 was dat als honorair medewerker.
Sinds augustus 1991 is hij werkzaam in de Dr Daniel den Hoed Kliniek te Rotterdam, waar hij besliskundig onderzoek verricht naar de behandelings-preferenties van patiënten met T3-larynxkanker.