Predictors of Future Anxiety about Male Pattern Baldness

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Abstract

This exploratory study examined potential predictors of future anxiety in young men about Male Pattern Baldness (MPB). The participants were 173 men aged between 18 years and 35 years who had not yet experienced significant personal hair loss. Participants completed a self-report questionnaire which measured psychosocial independent variables using the State-Trait Anxiety Inventory – Trait scale, the Appearance Orientation subscale and the Body Areas Satisfaction Scale of the Multidimensional Body-Self Relations Questionnaire, the Locus of Control Scale, the Revised Self-Consciousness Scale, Texas Social Behavior Inventory – Short form A. A stable and consistent scale of future anxiety specific to Male Pattern Baldness was developed for the present study to measure the dependent variable. Of the psychosocial variables, trait anxiety, appearance orientation, private self-consciousness and powerful others locus of control, together accounted for 22.8 % of the variance in future anxiety about MPB in this sample. Four proposed determinants of future anxiety in general were also evaluated for their predictive power of future anxiety specific to MPB. These were perceived likelihood of personal hair loss in the future, imminence of expected hair loss, subjectively perceived undesirability of MPB, and confidence in personal ability to cope with MPB. When added to the pool of potential predictors a new combination with additional predictive power was produced which included confidence in personal ability to cope with MPB, undesirability of MPB, trait anxiety, and powerful others locus of control. In combination these variables accounted for 45.3 % of the variance in future anxiety about MPB in this sample.

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Chapter One

Introduction

In Western culture the last decade has seen an increasing emphasis on male physical appearance which is reflected in an unprecedented wealth of interest, knowledge, and variety of choice in methods to alter appearance (Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986; Davis, Brewer, & Weinstein, 1993). This type of societal focus provides reason for concern about the production of body dissatisfaction through heightened discrepancies between mens' own bodies and their perception of what constitutes ideal physical appearance. While a substantial body of research has examined female body image often because of its role in eating disorders, male body image has received considerably less attention. Although much of the research which does exist on male body image is specific to attitudes about body shape and weight, it is clear that men experience body dissatisfaction (Tucker, 1982; Davis et al., 1993; Pope, Gruber, et al., 2000; Cohane & Pope, 2001), indicating that physical appearance is important to men.

The ideal muscular male body has been associated with perceptions of the highly valued qualities of masculinity and youth in Western society (Mishkind et al., 1986; McCaulay, Mintz, & Glenn, 1988; Grogan, 1991; Grogan & Richards, 2002), and full heads of hair have similarly been associated with greater perceived physical attractiveness (Roll & Verinis, 1971; Cash, 1990; Muscarella & Cunningham, 1996). Like certain body weights and shapes, the advent of personal hair loss or hair line

recession introduces hair as another possible source of a self/ideal discrepancy in men because balding deviates from what men often regard as the ideal appearance (Franzoi, Anderson, & Frommelt, 1990; De Muro-Mercon et al., 2000). This type of hair loss is called Male Pattern Baldness (MPB), or the broader term androgenetic alopecia which describes this hair loss with age in men and women (Ellis, Stebbing, & Harrap, 2001). MPB can occur at any time after puberty (Bertolino, 1993; Sinclair, 1998; Hogan & Chamberlain, 2000), and in Caucasian men over half will experience noticeable hair loss by the time they are 50-years-old, however individual men lose their hair in different patterns and at different rates (Norwood, 1975). For example, no sequence of hair loss pattern is uniformly experienced by men losing hair, and the rate of hair loss may be rapid, sporadic, or gradual (Norwood, 1975; Sinclair, 1998).

Only since the 1980s has research turned to consider MPB and the effects it has on men's experiences and wellbeing. Not only is MPB highly prevalent (Norwood, 1975), the sparse findings to date have painted an uninviting picture of MPB in terms of impressions and experiences of baldness (Roll & Verinis, 1971; Cash, 1990, 1992; Franzoi et al., 1990; Cash, Price, & Savin, 1993; Wells, Willmoth, & Russell, 1995; Muscarella & Cunningham, 1996; Venneman, 1997; Budd et al., 2000). Amongst the numerous appearance enhancement products and strategies few are effective in treating MPB (Bertolino, 1993). The time of onset and the rate and extent of hair loss are determined by age, genetics, and androgens (Norwood, 1975), and therefore are unpredictable, and without specific maintained medication to act on the process triggered by androgens MPB is progressive and permanent (Sinclair, 1998). In comparison, other sources of body dissatisfaction such as body weight, body shape, and muscle tone, can be relatively easily controlled through particular diet and

exercise techniques. According to Cash (1999), most men with androgenetic alopecia will suffer at least moderate distress associated with their hair loss. With these characteristics a degree of anticipatory distress in some men prior to baldness could be expected, so it is surprising that consideration has not yet been given to this possibility. The current study will address this gap in the existing literature.

Future anxiety occurs in anticipation of a subjectively perceived threatening occurrence which is expected in the future (Zaleski, 1996). This study seeks to explore psychosocial characteristics of men which predict future anxiety about MPB and to evaluate the use of four proposed determinants of future anxiety in general (Eysenck, 1992; Zaleski, 1996). A scale to measure future anxiety specific to MPB will be developed for use in this study, facilitating the first step of research towards sifting out useful predictors of future anxiety about MPB in young men. With reference to this specific future event, the recently conceptualized emotion of general future anxiety will be able to be further examined.

Chapter Two

Literature Review

2.1 Male Body Image

Recent research has acknowledged body image concerns for men, revealing that as well as females, males experience dissatisfaction with their physical appearance (Mishkind et al., 1986; Grogan, 1991; Tucker, 1982; Davis et al., 1993; Cohane & Pope, 2001). Body dissatisfaction measured by self/ideal discrepancies can begin at a young age as a review of 17 studies of body image in boys aged under 18 years indicated; many of the boys of all ages reported being dissatisfied with their bodies (Cohane & Pope, 2001). Research also shows that similar proportions of men are dissatisfied with their body as women (Mishkind et al., 1986; Berscheid, Walster, & Bohrnstedt, 1973). Seventy percent of men have reported a discrepancy between their own and their ideal figure, with approximately half of the dissatisfied participants wanting to be bigger and half wanting to be smaller (Tucker, 1982; Mishkind et al., 1986; McCaulay et al., 1988). Grogan (1991) suggested that some studies have produced smaller percentages of male body dissatisfaction because they averaged the dissatisfaction effect of the sample, producing figures indicating little dissatisfaction in men as the figures of those wanting to be bigger and those wanting to be smaller cancelled each other out (Grogan, 1991). The different directions of deviation from average body size which create dissatisfaction for men and women

could be explained by the different culturally prescribed ideals of a muscular male body or a slender female body (McCaulay et al., 1988; Grogan & Richards, 2002).

The American Society of Plastic Surgeons reported that in 2001 men had over one million cosmetic surgery procedures, an increase of 256% since 1997 figures (American Society for Aesthetic Plastic Surgery, 2002). The most common surgical procedures for men in 2001 were lipoplasty, nose reshaping, eyelid surgery, breast reduction, and facelifts (American Society for Aesthetic Plastic Surgery, 2002). The greater accessibility of cosmetic procedures is likely to account for a considerable proportion of this increase, however these statistics may suggest that many men are concerned about physical appearance and are aiming to achieve appearance ideals they do not currently meet. Perhaps attractiveness is being so valued and sought after because attractive men enjoy benefits such as have being rated as more masculine, and more likeable, and being regarded as having more integrity, than unattractive men (Heilman & Stopeck, 1985b).

In terms of somatotype, a muscular mesomorphic build is the ideal of Western culture, and as self-perceived body type deviates from this ideal, self concept and body satisfaction decline (Tucker, 1982; Mishkind et al., 1986; Pope, Gruber, et al., 2000; Grogan & Richards, 2002). A study in France, Austria, and the United States of America, revealed that men in all three countries identified an ideal body that averaged 13 kg more muscular than their present body, and although they estimated that women would rate the ideal male body as 14 kg more muscular than themselves, women preferred a body similar to the actual average man (Pope, Gruber, et al., 2000). Male body dissatisfaction has been particularly situated with the chest and

waist and men who have greater upper body dissatisfaction are more anxious about evaluation of their bodies by others (Mishkind et al., 1986; Davis et al., 1993). These body sites do not universally provoke the dissatisfaction reported in the literature, however following a considerable review of research, Grogan (1991) concluded that the main areas of dissatisfaction were mid-torso, biceps, shoulders, chest, and general muscle tone. This is consistent with the current ideal of the muscular mesomorphic male body which is reflected in other research findings (Tucker, 1982; Mishkind et al., 1986), and to which the media probably contributes and reflects.

Demographic characteristics are associated with varying levels of body satisfaction. In terms of ethnicity, Caucasians have significantly lower body function satisfaction and body appearance satisfaction than African-Americans (Miller et al., 2000; Reboussin et al., 2000), and despite identifying the same ideal figure, Asian men reported a greater discrepancy than Caucasian men between their current figure and this ideal (Barnett, Keel, & Conoscenti, 2001). Male Chinese students living in Hong Kong reported more body and weight dissatisfaction, more dieting, and less exercise, compared to male Chinese students living in the United States of America which indicates that country of residence is related to body image (Davis & Katzman, 1998). Education level has a significant positive association with body appearance satisfaction identifying it as another demographic factor related to male body image (Reboussin et al., 2000). In some studies of male and female adults body image satisfaction increases with age (Eade, 1996; Reboussin et al., 2000), which could be partially explained by another finding that the importance of physical appearance decreases with age for men (Pliner, Chaiken, & Flett, 1990). However other research has found no difference in body image or body attitudes with age for men or women

(Berscheid et al., 1973; Wilcox, 1997). Therefore, although men of all ages experience appearance dissatisfaction, and this has been related to race, ethnicity, country of residence, and education level, the role or the degree of body satisfaction across the lifespan remains unclear.

In one study young men and women were more insecure about their appearance if they were single than if they were in a relationship (Cooper, 1993). Similarly, single men reported greater body dissatisfaction than married men while there was no difference for the women according to relationship status (Berscheid et al., 1973). Childhood teasing also appears to influence adult body image in men. Of men with below average body image in one large survey, 15% were never teased, 26% were sometimes teased, and 27% were frequently teased, and this relationship between being teased and subsequent body image was stronger for men than for women (Berscheid et al., 1973). This could perhaps in part be explained by the findings of another study in which frequency of childhood teasing was not associated with worry, however teasing was significantly and positively associated with trait anxiety, social anxiety, and anxiety sensitivity (Roth, Coles, & Heimberg, 2002). This suggests that body image may be one of the characteristics rendered vulnerable to a focus of anxiety with childhood teasing. These associations between relationship status and childhood teasing with body image indicate that body image for men in part rests in interpersonal perceptions or experiences.

On reviewing early and recent research on male body image, several sets of authors have concluded that men are negatively evaluating their bodies to a greater degree than previous generations (Davis et al., 1993; Pope, Phillips, & Olivardia,

2000). Similarly, Mishkind and colleagues (1986) believe men are showing an unprecedented degree of bodily concern, and Knapp and Hall (2002) also note that for men concern about physical appearance has been escalating in recent years. This elicits concern because greater body image dissatisfaction has been associated with lower self-esteem and poorer overall psychological adjustment (Martin, 1997), which not only indicates that the value we hold in ourselves rests in part in our perceived appearance, but that body dissatisfaction can jeopardize psychological wellbeing.

Hair loss and body image

Like certain body weights, body shapes, or muscle tone, hair loss may facilitate appearance dissatisfaction. Compared to non-balding men, men with hair loss had lower satisfaction with the overall appearance of their hair (DeMuro-Mercon, Rhodes, Girman, & Vatten, 2000), and judged themselves as less attractive (Franzoi et al., 1990). The negative perceptions and experiences of MPB will be reviewed in deeper detail later, however these findings suggest that hair may be a specific individual component of a possibly multidimensional body image concept. In patients undergoing chemotherapy for cancer, hair loss has often been identified as the most traumatic side-effect (Pickard-Holley, 1995; Münstedt et al., 1997). Although this is a very different type of hair loss compared to MPB, and the sample characteristics will also be vastly different, this does suggest that as hair is lost, part of personal psychological wellbeing may also be lost.

Disorders related to body image dissatisfaction

While many people experience some degree of dissatisfaction with part of their body or appearance, for some this concern can dominate numerous areas of functioning and manifest itself in a psychological disorder. Body image dissatisfaction may contribute to the vulnerability which facilitates suggestibility to media portrayals of ideal and acceptable body appearance, in turn precipitating eating disorders such as anorexia nervosa and bulimia. The disturbances of eating behaviour in anorexia nervosa are fuelled by distortions in body image and involve an exaggeration of self-ideal discrepancies (Kaplan & Sadock, 1997). Social physique anxiety is also characterized by body dissatisfaction and involves distress in response to perceived evaluation of one's physique by others (Hart, Leary, & Rejeski, 1989). The typical behavioural tendencies of people with anxiety are seen in those high in social physique anxiety as they often avoid or become distressed in situations when their physique will be accentuated or evaluated, and use numerous strategies to improve their physique (Hart et al., 1989).

Hair is a significant component of body image and is a prominent focus of concern in Body Dysmorphic Disorder (Phillips, 1996a; Kaplan & Saddock, 1997; Perugi et al., 1997; Phillips & Diaz, 1997). Body Dysmorphic Disorder (BDD) involves a preoccupation with an imagined fault in physical appearance or an excessive concern about a minor existing defect (American Psychiatric Association, 1994; Kaplan & Sadock, 1998). BDD can involve ritualistic and compulsive behaviour but unlike anorexia nervosa, being considerably underweight does not accompany this preoccupation and BDD dissatisfaction most often involves the skin,

hair or nose (Phillips, 1996b). A review of all the available published cases of BDD showed a relatively even sex ratio of 1.25 women to 1.0 men (Phillips, 1996b). In a study of 33 children and adolescents with BDD, 55% had bodily preoccupations focused on hair, second only to skin (61%; Albertini & Phillips, 1999). Phillips & Diaz (1997) found that compared to women with BDD, men with BDD are more likely to be preoccupied with body build, genitals, and hair thinning. For 50% of a sample of patients with BDD a location of perceived defect was head hair (Kaplan & Sadock, 1998), and 57% of a sample of men with BDD similarly reported head hair was the site of concern (Pope, Phillips, et al., 2000).

High anxiety about MPB may be an indication of BDD in some men. BDD frequently goes hand in hand with depression and social anxiety (Phillips, 1996b). According to Phillips (1996b), BDD is underrecognized, underdiagnosed, and misdiagnosed. As suggested by Phillips (1996b) and Cash (1999), many of these people do not receive psychological attention because they consult a dermatologist or cosmetic surgeon, or invest large amounts of time and money in coping strategies and cosmetic treatments instead. Four particularly common behaviours which are reported by the majority of people with BDD are comparing and scrutinizing the appearance of the self and others, checking appearance in mirrors and other reflective surfaces, camouflaging the site of concern, and seeking surgical, dermatological or medical treatment (Phillips, 1996b). The distinction between the behaviour of men with BDD and the behavioural coping strategies of men who are anxious about MPB is yet to be clarified by research. Also in need of distinction from future anxiety about MPB, is the fear of future events and experiences, and a sense that appearance will only

deteriorate further with time, which are prominent concerns for people with BDD (Phillips, 1996b).

2.2 Hair Growth

The characteristics and patterns of hair growth vary according to age, site of growth, and unique individual characteristics. The following is a simplified description of the typical growth stages and patterns of head hair. The hair follicle has a bulb just below the skin where the hair root is attached and where new cells are formed and nourished, pushing the hair out of the follicle (Hair Club, n.d.). Spaces called fusi in the cortex cells of the hair dry out and become filled with air instead of fluid, so visible hair is this dead protein (Montagna & Van Scott, 1958). The thickness of each hair is determined by the size of its follicle (Hair Club, n.d.), and the primary determinant of hair length is the length of the anagen stage of the hair growth cycle (Sinclair, 1998). The anagen stage lasts for two to seven years during which the hair grows approximately one centimetre each month, and is followed by a few days called the catagen phase when the hair detaches from its blood supply at the root (Montagna & Van Scott, 1958; Pickard-Holley, 1995; Paus, Muller-Rover, & Botchkarev, 1999; Hair Club, n.d.). The hair no longer grows and is dormant for approximately three to five months during the telogen phase, before being shed and the growth cycle begins again (Pickard-Holley, 1995; Paus et al.; Hair Club, n.d.).

Conditions involving hair loss

Male pattern baldness can be diagnosed when other causes of hair loss are considered unlikely. Two less common conditions which involve hair loss in men are alopecia areata and telogen effluvium (Bertolino, 1993). In men and women of all ages scalp hair can be lost in patches which is called alopecia areata, and more severe forms of general alopecia areata are alopecia totalis when all scalp hair is lost, and alopecia universalis when hair is lost from the scalp and other hair growing areas of the body (Bertolino, 1993; de Andrade et al., 1999; Papadopoulos et al., 2000). The mode of inheritance of alopecia areata remains unclear as does the exact cause, although it appears to be a T cell mediated immune response specific to the hair follicle, also involving a genetic predisposition, biology of the hair follicle, neurochemistry, neuroimmunology and endocrinology (Bertolino, 1993; Gilhar et al., 1999; Papadopoulos et al., 2000). Telogen effluvium is characterised by rapid hair loss as many follicles simultaneously shift in to the telogen phase, and amongst the triggers of this condition are birth control pills, high fever, severe dieting, drug side effects, and emotional or physiologic stress (Bertolino, 1993; Papadopoulos et al., 2000).

Other conditions involving hair loss include endocrine or systemic diseases, hereditary syndromes such as Marie Unna congenital hypotrichosis, the compulsive and ritualistic hair pulling syndrome called trichotillomania, or it can also be cause by drug and chemotherapy side-effects, deficiency states such as nutrition or weight loss, structural or growth abnormalities of the hair, scalp or hair trauma, or harsh hair care

(Bertolino, 1993; Kaplan & Sadock, 1998; Roberts et al., 1999, Papadopoulos, Schwartz, & Janniger, 2000).

Male Pattern Baldness (MPB)

In MPB, an isoenzyme called type II 5 alpha-reductase that is present in hair follicles and on the scalp, converts the hormone testosterone to dihydrotestosterone (DHT; Ellis, Stebbing, & Harrap, 1998). DHT is a potent androgen and hair follicles in areas of the scalp which are vulnerable to baldness are androgen sensitive (Hogan & Chamberlain, 2000). For example, the follicles on the side and back of the head do not display this sensitivity to DHT (Hair Club, n.d.). Increased expression of the androgen receptor gene and high levels of DHT characterize scalps with MPB (Ellis et al., 2001). The diameter of these androgen sensitive follicles is reduced when they are exposed to DHT and these follicles then produce vellus hairs instead of the coarser, pigmented, terminal hairs, so although the number of follicles remains similar, the vellus hairs are fine, short, hairs with no pigment so are therefore barely visible (Setty, 1970; Whiting, 1993; Sinclair, 1998; Hogan & Chamberlain, 2000).

In defining diagnostic characteristics of MPB, Whiting (1993) observed a shift in the ratio of terminal to vellus hairs from the normal 7:1, to 2:1 in MPB, as well as a likely shortening of the anagen stage suggested by the observed anagen/telogen ratio which shifts from 14:1 in normal men to 5:1 in men with MPB. This means that with MPB not only is the growth phase of the hair shortened, but a smaller proportion of the hairs are in the growth phase. Instead, a disproportionately

high number of hairs shift to the telogen stage which involves no growth, and at the end of which the hair is shed. In MPB the length of the anagen stage decreases with each successive growth cycle (Sincalir, 1998).

In MPB hair is lost in recognizable patterns. Norwood (1975) observed these patterns in 1,000 white adult males to develop a classification system including eight core types (see Figure 1). This system is intended as a guideline to clarify studies of MPB because infinite variations and sequences of hair loss progression are possible. In Norwood's sample (1975), type of hair loss according to age group shows MPB is a common, highly prevalent condition in men which progresses in incidence and degree with age. For example, in young men (18- to 29-year-olds) 60% were Type I, 28% were Type II, and 6% were Type III (Norwood, 1975). In the following age group (30- to 39-year-olds) 36% were Type I, 26% were Type II, and 18% were Type III (Norwood, 1975). By the 60- to 69-year-olds age group there was a relatively even spread across hair types ranging from 10% to 19% for each type, with 50% being Type IV or higher (Norwood, 1975).

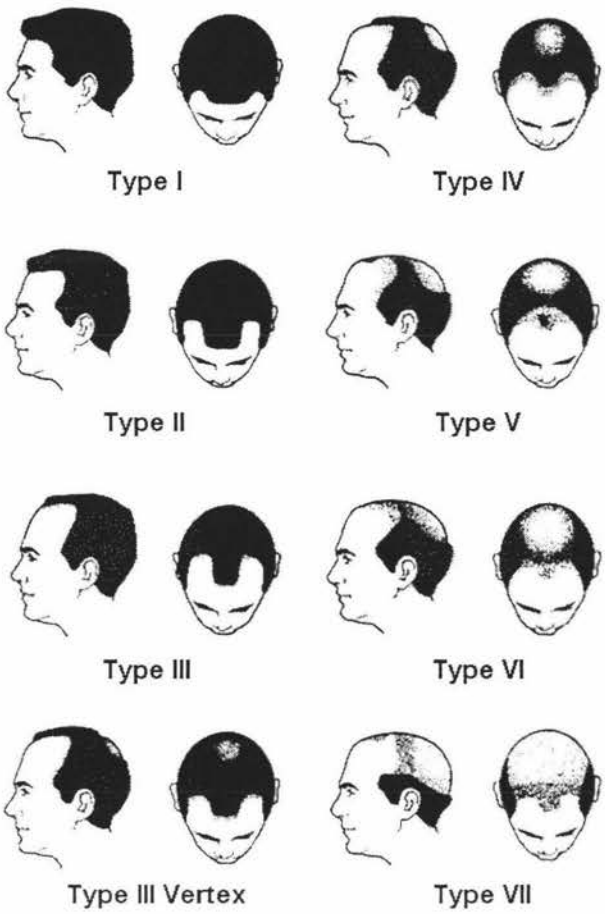

Figure 1. A recent version of the Norwood Male Pattern Baldness classification system (1975). [1]

[1] The Norwood Male Pattern Baldness Classification System (n.d.). Retrieved April 18, 2002, from http://www.keratin.com/ac/baldnesspatterns/bal.../002norwood baldnessclassification.shtm

There are racial variances in the prevalence, extent, and course of MPB however. Compared to Caucasians, MPB is less common and less severe in African Americans and Asians, and the onset of MPB begins later in Asians (Setty, 1970; Bertolino, 1993). Full heads of hair were found to be four times more frequent in African Americans than in Caucasians (Setty, 1970). In another study the prevalence of androgenetic alopecia was lower in Korean men than in Caucasian men (Paik et al., 2001). Although the sizes of comparison groups were limited, a study of 17 to 86 year olds in Singapore also produced different prevalence rates according to ethnic group (Tang et al., 2000). Specifically, 61% of the Chinese, 65% of the Malay, and 87% of the Indian respondents had MPB (Tang et al., 2000). These racial differences may indicate a genetic involvement in MPB.

Although popular myths regarding the determinants of baldness indicate that MPB is a frequently misunderstood condition (Hair Club, n.d.; Tang et al., 2000), the actual determinants of MPB have been known for some time. Hamilton (1942) demonstrated that the three determining components of the occurrence and extent of MPB are androgens, genetics, and aging. Norwood (1975) noted that as early as 400 BC Hippocrates and Aristotle had noticed that eunuchs do not become bald. To investigate this Hamilton (1942) used a sample of 312 normal men and 104 eunuchs and eunuchoid men, and demonstrated that regardless of the strength of the genetic predisposition, MPB will not occur in the absence of androgens, explaining why eunuchs do not become bald. For example, MPB was not observed in men who did not develop sexually despite the strength of familial tendency towards baldness, and in normal men who were balding, castration prevented further progression of hair loss (Hamilton, 1942). Similarly, a study on an inherited form of pseudohermaphroditism

revealed that men with a genetic deficiency of type II 5 alpha-reductase do not experience temporal recession of the hairline (Imperato-McGinley, Guerrero, Gautier, & Peterson, 1974). It should be noted that regular (not necessarily abnormal) androgen levels are sufficient to trigger MPB (Bertolino, 1993).

Hamilton (1942) found male pattern baldness will not occur with the presence of androgens if a genetic predisposition does not exist. These findings demonstrate that androgens are an inciting agent which triggers MPB in genetically predisposed men (Hamilton, 1942). According to Hogan and Chamberlain (2000), the distribution of the androgen sensitive follicles is genetically determined. Although the mode of inheritance of MPB remains unknown, at the present time it is informally agreed that it is likely to be polygenic, and research has so far associated the androgen receptor gene with MPB (Ellis et al., 2001).

The role age plays is demonstrated by the increased incidence and extent of baldness with age (Norwood, 1975), and this third factor becomes interlinked by Hamilton's evidence (1942), that despite advancing age, male pattern baldness does not occur without androgens.

Inaccuracies in public understanding of the causes of MPB was illustrated in a sample of 254 men who were asked what they believed the causative factors of MPB were, when 67% believed natural aging played a role, 68% listed stress, and 56% noted diet as causes (Tang et al., 2000). Research to date has only lightly touched on knowledge about MPB so it remains unclear what contribution understanding of MPB plays in attitudes and emotions towards it.

Treatment options for MPB

Despite the abundance of an expanding range of hair loss treatments, MPB does not need to be treated so procedures are primarily for cosmetic or psychological benefit. MPB only becomes a medical problem when it is subjectively perceived as being excessive, premature, or distressing (Sinclair, 1998). Amongst the wealth of 'remedies' for baldness, very few have been assessed by scientific research. The only products which have reliable evidence for their effectiveness and which are currently approved by the Food and Drug Administration in the United States for treatment of MPB are Propecia (finasteride) and Rogaine (minoxidil; Sinclair, 1998; DermMatch, 2001; Bader & Trueb, 2002).

Finasteride acts on the type II 5 alpha-reductase enzyme and inhibits DHT formation (Sinclair, 1998; Ellis et al., 1998, 2001; Price, Menefee, Sanchez, Ruane, & Kaufman, 2002). Large-scale and long-term research using randomized and placebo-controlled groups, including multinational and twin studies, and double-blind procedures, provide sound evidence for the effectiveness of finasteride, 1mg, daily (Whiting et al., 1999; Van Neste et al., 2000; Stough et al., 2001; The Finasteride Male Pattern Hair Loss Study Group, 2002; Price et al., 2002). Patient self-assessment, investigator and photographic assessment record superior results of finasteride over a placebo (Van Neste et al., 2000; Stough et al., 2001; The Finasteride Male Pattern Hair Loss Study Group, 2002). In finasteride groups significantly increased total and anagen hair count, increased hair weight, and increased anagen to telogen ratio with reductions in the proportion of miniaturized hairs, compared to placebo groups who experienced progressive decreases in all, demonstrates the

effectiveness of this treatment (Whiting et al., 1999; Van Neste et al., 2000; Stough et al., 2001; The Finasteride Male Pattern Hair Loss Study Group, 2002; Price et al., 2002). Across five years these improvements have been maintained (The Finasteride Male Pattern Hair Loss Study Group, 2002). While 2% topical minoxidil solution has enhanced hair growth and halted hair loss, the higher concentration of 5% topical minoxidil solution is superior, producing 45% more hair regrowth and an earlier treatment response than the 2% solution after 45 weeks treatment in a placebo controlled study (Olsen et al., 2002).

Although the specific course of action of minoxidil remains unknown, it has most recently been suggested that one of the key functions of minoxidil is in prolonging the anagen growth phase of hair (Otomo, 2002). After 12 months of minoxidil use, 15% of participants have hair regrowth, the progression of hair loss halts for 50%, and hair loss continues for 35% (Sinclair, 1998). In comparison, after 12 months of finasteride treatment, 48% have hair regrowth, the progression of hair loss halts for 51%, while hair loss continues for 1% of participants, and greater proportions of participants experience regrowth or halted progression of loss after 24 months of finasteride treatment (Sinclair, 1998). These statistics indicate that finasteride is effective for a greater proportion of participants than minoxidil, however these benefits of minoxidil and finasteride reverse with the cessation of treatment as balding, including the loss of regrown hair, resumes (Sinclair, 1998).

The best treatment results have been produced when a combination of both oral finasteride (1 mg) and topical (2%) minoxidil is used (Khandpur, Suman, & Reddy, 2002). One study divided 100 men with androgenetic alopecia in to four

groups and used patients' self reports, a global photographic review, and physicians' assessments to evaluate treatment effectiveness (Khandpur et al., 2002). Group I took oral finasteride, Group II were given finasteride and topical minoxidil, Group III only applied minoxidil, and Group IV used ketoconazole shampoo and took finasteride (Khandpur et al., 2002). After one year Group II produced the most successful results, followed by Groups IV, I, then III, indicating that finasteride taken either alone or in combination is more effective in treating androgenetic alopecia in men than using minoxidil alone (Khandpur et al., 2002).

Adverse reactions associated with finasteride have included sexual problems such as loss of libido, and hypotension (Van Neste et al., 2000; The Finasteride Male Pattern Hair Loss Study Group, 2002; Khandpur et al., 2002; Price et al., 2002), and problems associated with minoxidil use have included headaches, irritations and symptoms of dermatitis, and cardiovascular abnormalities (Olsen et al., 2002). However these adverse events are statistically insignificant when compared to placebo groups, and effected between 0% and 6% of the treatment samples in recent studies, indicating that both finasteride and minoxidil are generally well tolerated (Van Neste et al., 2000; The Finasteride Male Pattern Hair Loss Study Group, 2002; Khandpur et al., 2002; Olsen et al., 2002; Price et al., 2002).

Strategies to camouflage balding sites include concealers which range from wigs or toupees (which are now often referred to as hair systems), surgical hair transplants, thickening coats and sprays, scalp colours, and particular hairstyling. Other common products claiming to prevent, stop, or slow hair loss are shampoo and conditioners, regrowth formulas and rub on gels, and vitamins for hair. In one sample

74% of the participants who sought treatment for their MPB used unproven, non-medical strategies (Tang et al., 2000), however it is unclear whether this was due to differences in cost or availability, lack of knowledge about MPB causes and product action and effectiveness, or other reasons. Although finasteride and minoxidil have shown ability to halt and prevent further hair loss for as long as the medication is continued, Rubin (1997) claimed that the options for hair loss treatment were not particularly successful, and according to Cash (1999) they have been largely ineffective in meeting patients' expectations and in relieving their distress. This suggests that currently the best preparation for accepting and coping with MPB may be a psychological and educational one.

2.3 Anxiety

Anxiety is a common negative emotion. Although unpleasant, anxiety appears to be an inevitable part of human experience which functions to warn, alert, prepare, or motivate us in the face of threat. Heightened or prolonged intensity or frequency of anxiety, as well as absence of anxiety, contribute to a considerable proportion of affective based psychological disorders (Kaplan & Sadock, 1997). Anxiety is a multi-faceted emotion involving physiological, cognitive, learning, and behavioural components. Numerous theories of anxiety exist, each espousing different sequences and roles of these components of anxiety. Strongman (1995, 1996) provides a comprehensive review of these. Amongst his conclusions is that although anxiety appears to be a similar emotion to fear, the object of fear is real, external, known, or objective, and that these characteristics can be used to differentiate fear from anxiety.

Another conclusion Strongman drew was that the role of cognition must hold a prominent position in any explanation of anxiety because the core of this emotion is uncertainty (Strongman, 1995, 1996). The distress measured in the present study is conceptualized as a type of anxiety because the time of onset, the extent of loss, the rate of loss, the personal ability to cope with hair loss, and the reactions of others to the participants' future hair loss are all uncertain.

Future anxiety

Zaleski noted that most anxiety is future oriented however he defined and differentiated future anxiety as, "...a state of apprehension, uncertainty, fear, worry and concern of unfavourable changes in a more remote personal future." (Zaleski, 1996, p.165). Zaleski (1996) described future anxiety as involving an expectation of a subjectively aversive situation which creates anticipatory fear and anxiety, and this can occur well in advance of the aversive occurrence. According to Zaleski (1996), the antecedents to future anxiety and the nature of future anxiety and are strongly cognitive, so simply thinking about a possible deleterious future event is sufficient to produce an anxiety reaction in the present time. This indicates that the self-report scale method of measurement should be sufficiently sensitive to future anxiety.

The present study sampled young men who had not yet experienced significant hair loss but in whom incidence figures indicate a substantial proportion can expect to experience MPB in the future. A study by Susulowska (published in another language; cited in Zaleski, 1996), showed that future anxiety appeared at ages

11 to 14 years, was highest in frequency between the ages of 20 to 29 years, and barely appeared at all in older age. This peak in the frequency of future anxiety coincides with the age MPB is likely to be a relevant concern. Given that hair loss is largely regarded as an undesirable experience, future anxiety about MPB may be experienced by some participants.

Amongst the sparse literature on future anxiety, preliminary research by Zaleski (published in another language; cited in Zaleski, 1996), revealed that people high in future anxiety often seek, use, or even coerce people who they judge to hold considerable power (perhaps due to their money for example), because of the security and ease they perceive others' power will provide for their own future. This suggests that type of locus of control, which indicates the perceived source of power over one's life, may be a predictor of future anxiety.

One possible buffer to future anxiety emerged with the finding that strong religious, humanistic, moral, or scientific values were negatively associated with the degree of future anxiety (cited in Zaleski, 1996). Other particular conditions and perceptions which influence the degree of future anxiety experienced have also emerged in previous research. Bandura (1997) explained that the more predictable a threatening event is the less anxiety provoking it will be, and it has been demonstrated that the anxiety reaction is more intense when the time of a negative occurrence is uncertain (Monat, Averill, & Lazarus, 1972). Another perception, estimated likelihood of a negative occurrence, has been shown to be a central component of worrying (MacLeod, Williams, & Bekerian, 1991). Imminence of the threatening event emerged as another source of influence on future anxiety with the finding that

greater expectation of examination failure was associated with greater anticipatory anxiety as the examination time approached (Butler & Mathews, 1987).

Subjective perception of personal ability to cope with an expected negative event has also been proposed as a determinant of future anxiety. According to Bandura (1997), greater perceived severity of a threat, and distress related to it, are heightened when perceived coping efficacy is low. In terms of threats involved with the aging process, perceived control over one's development has been associated with enhanced life satisfaction, frequency of positive affect, and reduced frequency of negative affect (Lang & Heckhausen, 2001). This supports Zaleski's preliminary research (cited in Zaleski, 1996) in suggesting that type of locus of control may be an important determining factor in the degree of future anxiety.

The relationship of trait anxiety with future anxiety has also emerged in the research. Trait anxiety has been associated with subjectively perceived risk of negative events, indicating that trait anxiety is related to the extent or range of perceived threatening situations which elicit anxiety (Butler & Mathews, 1987; MacLeod et al., 1991). Anxiety about what were widely perceived to be uncertain but potential year 2000 computer malfunctions, was related to the general disposition towards experiencing anxiety (Rodriguez, 2002). Cognitive processes such as negative biases in memory, and selective attention and interpretation of stimuli, which produce threat evaluations have been proposed as being centrally important in the explanation of trait anxiety (Eysenck, 1997). It was speculated that the extent, elaboration, or accessibility of threat related cognitive schemas, are reflected in trait anxiety levels (Butler & Mathews, 1987).

According to Zaleski (1996), the major determinant of the existence and duration of worry is the threat value, and this can be evaluated on a continuum of degrees of subjective importance. Eysenck (1992), and Zaleski (1996) have proposed four determinants of the threat value including a) subjective probability of occurrence, and b) subjective imminence of the aversive event; c) perceived aversiveness (which will depend on the investment and value held in what is under threat), and d) confidence in ability to control or cope with the threatening event.

Anxiety about aging

Hair loss is one of the numerous physical processes of aging. Aging anxiety has been explained as an independent anxiety construct involving physical, psychological, social, and transpersonal or spiritual dimensions (Lasher & Faulkender, 1993). Aging anxiety is the future oriented worry induced by anticipating threats associated with aging processes (Watkins, Coates, & Ferroni, 1998). The anxiety about changes in physical appearance with aging factor of the Anxiety about Aging Scale was significantly correlated with age ($r = -2.69, p \leq 0.001$) in one sample which included participants of all ages (Lasher & Faulkender, 1993), but increased insignificantly with age in an elderly sample (Watkins et al., 1998). Although the pattern of changes in aging anxiety with time and development remain unclear, the loss of future orientation of the event (aging) as age increases has been proposed as an explanation (Watkins et al., 1998).

Lasher & Faulkender (1993) explain that knowledge about aging processes and perceptions of control over one's experiences reduce aging anxiety. In support of this knowledge of aging has been consistently associated with reduced worry about future aging (Neikrug, 1998). This indicates the need for caution when interpreting the results of the present research due to the possibility of knowledge about hair loss being an uncontrolled confounding variable. The present research focuses on future anxiety about the specific physical aging process of hair loss.

2.4 Future Prediction Errors

Although this study looks at present anxiety in response to a future occurrence, it is likely that perceptions of future reaction in response to experienced hair loss will play a part in determining how uncomfortable people feel about it now before it happens. However, evidence suggests our future predictions are often inaccurate (Weinstein, 1980; Butler & Matthews, 1988; Cohn & Adler, 1992; Zaleski, 1996; Hilts, 2000). One distortion we make is unrealistic optimism (Weinstein, 1980). Using a sample of 258 college students, Weinstein (1980) found that overall, participants rated their chances of personal experience of negative life events as below average. The more undesirable the event was perceived to be, the more likely the participants were to underestimate the likelihood of it happening to them (Weinstein, 1980). Unrealistic optimism about aging also occurs, however an educational course on gerontology was ineffective in promoting more realistic attitudes (Miller, 1996).

A second distortion we make in future predictions is exaggerated pessimism (Butler & Matthews, 1988; Cohn & Adler, 1992). College men have misjudged the body preference of their male peers by exaggerating the degree other men perceive the culturally prescribed large muscular physiques as ideal (Cohn & Adler, 1992). Students high in trait anxiety have heightened subjective probabilities of the likelihood of a negative event happening to them (Butler & Mathews, 1988). MacLeod et al. (1991) specify that greater accessibility for explanations of why a negative event would occur, in conjunction with reduced accessibility of explanations for why it would not occur facilitate pessimistic subjective probabilities.

An error we make in predicting our emotions is that although we can usually identify what makes us feel good or bad correctly, we are often incorrect in our predictions of the strength and duration of that feeling (Hilts, 2000). In addition, Hilts (2000) noted that we underestimate our ability to overcome negative life events, and Zaleski (1996) found that people who scored higher in future anxiety were more pessimistic in predicting a future solution to a problem.

The interrelationship between anxiety, and cognitive distortions and biases, is widely acknowledged and demonstrated (Butler & Matthews, 1987; Strongman, 1995, 1996; Eysenck, 1997; Kaplan & Sadock, 1997; Derakshan & Eysenck, 2001), therefore prediction errors may be involved in the intensity of future anxiety about MPB experienced. This previous research suggests that pre-balding men may underestimate their ability to cope and value themselves once hair loss occurs and this would be expected to contribute to greater anticipatory distress about the onset and progression of hair loss. This evidence also suggests that any future anxiety about

MPB is not an indication of lack of preparedness or actual ability to cope when hair does thin. However, whether or not people's apprehension is founded on realistic expectations, and whether or not it is influenced by accurate predictions, the resulting degree of present anxiety subjectively experienced still exists.

2.5 Negative Experiences and Threatened States of Wellbeing Associated with MPB

Research to date has both focused on and revealed an overwhelmingly negative impact of MPB on psychological, emotional, and social functioning, indicating that hair loss is a negative experience for many men (Cash, 1992; Cash et al., 1993; Venneman, 1997; de Koning, Passchier, & Dekker, 1990; Franzoi et al., 1990; Wells et al., 1995; Budd et al., 2000; DeMuro-Mercon et al., 2000). It should be noted that due to assumptions of this focus, possible positive or neutral consequences of hair loss have been largely overlooked by research. Also important to remember is that these are negative characteristics associated with hair loss once it has occurred and do not indicate directions of causality. However, these negative associations with hair loss provide face validity for the expectation of a proportion of anxiety in some vulnerable individuals in anticipation of MPB.

Firstly though, an exception to the otherwise apparently universal negative effects of MPB which seems to be emerging from the literature is that MPB does not appear to be perceived as a significant threat to occupational success (Hankins, McKinnie, & Bailey, 1979; Franzoi et al., 1990; Budd et al., 2000; "Statistics," 2001).

Although the American Academy of Facial Plastic and Reconstructive Surgery noted that 36% of men reported that they were motivated to undergo facial procedures by career concerns based on the belief that appearance influences promotion opportunites and career success ("Statistics," 2001), career disadvantages have not been reported in systematic psychological research which has focused on the perceived negative effects of MPB. A large study found androgenetic alopecia was not related to perceived job opportunities (Budd et al., 2000). Cranial hair has been shown to have no effect on job-related attributes in a study of perceptions of hypothetical male job applicants (Hankins et al., 1979), and men believed men with thinning hair are not likely to suffer discrimination in their job as a result (Franzoi et al., 1990).

These findings that hair loss has no effect on differences in job-related opportunities are surprising not only because they are the only characteristic apparently immune to threat from MPB, but because other aspects of appearance have produced both career advantages and career disadvantages. Physical attractiveness has been shown to make no difference in performance evaluations, or recommended action in terms of promotion, pay raise and merit pay raise (Heilman & Stopeck, 1985a), and employees have reported no particular preference for or against working with a male salesperson who was obese (Jasper & Klassen, 1990). However other studies have shown that attractive men were favoured in hiring decisions (Cash & Kilcullen, 1985), and the success of attractive male managers was attributed more to ability and less to luck than for unattractive men (Heilman & Stopeck, 1985b).

Impression formation

First impressions of others are formed using immediately available information which commonly includes physical appearance (Smith & Mackie, 1995). Although first impressions can be overcome, once they are formed they become a template from which we interpret future additional information about that person (Smith & Mackie, 1995). While exceptions exist, immediate visual evaluations of bald men are largely negative and certainly less favourable in comparison to perceptions of non-balding men indicating that balding men may be disadvantaged particularly in their initial interactions with others (Roll & Verinis, 1971; Cash, 1990; Muscarella & Cunningham, 1996; Butler, Pryor, & Grieder, 1998). Men with hair loss have been evaluated as being weak, inactive, unkind, bad, ugly, and hard, less potent and less dynamic, and in comparison to non-balding men were rated lower in physical and social attractiveness, masculinity, dominance and assertiveness, confidence, happiness, and success (Roll & Verinis, 1971; Cash, 1990; Muscarella & Cunningham, 1996; Butler et al., 1998). Balding men are judged to be older than their actual age in comparison to non-balding men who are judged to be younger than their actual age (Cash, 1990). The recent research indicates that this appearance-based stereotyping may be due to the lower perceived physical attractiveness of balding men rather than the actual baldness itself (Cash, 1990; Muscarella & Cunningham, 1996). However, impressions of balding men are not entirely negative. Qualities judged to be higher in bald men are stability, conscientiousness, and intelligence (Moerman, 1988). These largely negative impressions of balding men indicate that hair loss not only impedes perceived attractiveness but is also perceived to be associated with disagreeable personality characteristics.

Impression formation is a powerful agent in influencing interpersonal judgements and interactions, and social psychology principles reveal both the perceptions of and existence of benefits available to people who are more attractive (Smith & Mackie, 1995). Whether or not these negative impressions of MPB are accurate or translate into disadvantaged treatment of men with MPB, men themselves ascribe to these deleterious stereotypes and therefore are likely to be aware of them. These negative impressions may be applied to the self as well as others as suggested by the finding that mens' ratings of their own attractiveness diminishes with hair loss (Franzoi et al., 1990). Negative self-evaluations will probably be sufficient to elicit distress and disadvantage such men.

Negative interpersonal interactions

The disadvantages of MPB are not confined to impressions. Negative interpersonal interactions have been attributed to hair loss by balding men (Cash, 1992; Cash et al., 1993). Cash (1992) found 45% of men with modest hair loss and 79% of men with more extensive hair loss reported frequent peer teasing about baldness. In another study of men seeking treatment for androgenetic alopecia 60% reported being teased because of their condition (Cash et al., 1993). Teasing in any form, extent, or duration is insensitive, undesirable, and likely to elicit some degree of distress or discomfort. The literature indicates teasing is particularly threatening to body image in men (Berscheid et al., 1973), and strongly associated with anxiety (Roth et al., 2002), therefore teasing about MPB could create or intensify body image dissatisfaction and anxiety.

Negative personal experiences of MPB

Ultimately the self-reported perceptions, expectations, and experiences of MPB provide most insight into the nature and source of distress about this type of hair loss. The reported personal experiences of MPB paint a grim picture. Men with more hair loss were more distressed about it and also expressed more concern about aging than men with less hair loss (Budd et al., 2000; DeMuro-Mercon et al., 2000). Men with more extensive hair loss report more negative effects of hair loss and are significantly less satisfied with their overall hair appearance compared to men with no hair loss (Cash, 1992; Budd et al., 2000). These negative effects include reports of being teased more often, feeling self-conscious and less attractive, feeling helpless about MPB, and worrying about aging and about looking older than their actual age (Cash, 1992). These responses were reflected in greater reported behavioural coping strategies from men with a high degree of hair loss compared to men with little hair loss (Cash, 1992). Cash (1999) found that those who expected their hair loss to progress to a greater degree (as opposed to those expecting it to progress a little) in the next ten years, and single marital status were associated with greater distress about MPB. This finding is compatible with the previously reviewed findings that single men are particularly vulnerable to body dissatisfaction (Berscheid et al., 1973; Cooper, 1993).

In the findings reviewed in this section, expected extent of hair loss as well as actual degree of hair loss, appear to be positively associated with distress. Because the negative effects appear to increase proportionately with extent of loss, prior to hair

loss any related concern is likely to be in the form of future anxiety (an emotion experienced in anticipation of threat) rather than a present state anxiety.

MPB and reduced psychological and emotional wellbeing

Perhaps most concerning of all the negative effects is the reduced psychological and emotional wellbeing which is associated with MPB (Venneman, 1997; de Koning et al., 1990; Wells et al., 1995; Budd et al., 2000). These characteristics are not restricted to self-report perceptions. A questionnaire for general practitioners about patients with hair loss problems showed 50% of the patients were believed to have psychological problems, and of the 71 reports on male patients, the predominant psychological problems reported were low self-esteem (26%) and depression (9%; de Koning et al., 1990). However, it should be noted that patients in this sample were seeking help for androgenetic alopecia so may not be representative of men with hair loss in general and the reported problems could be stereotypical assumptions made by the practitioners (Cash, 1999).

Research using self-reports also indicates that the extent of MPB is proportionately associated with adverse psychological characteristics (Cash, 1992; Wells et al., 1995;Venneman, 1997; Budd et al., 2000). In a study of 1717 European men, greater hair loss was associated with more worry, helplessness, self-consciousness, and social stress (Budd et al., 2000). In another study, t-tests revealed that in men, those with hair loss were more anxious, depressed, and scored higher in negative affect than the general population (Venneman, 1997). A study which

controlled for age and used a non-clinical sample and observer-rated hair loss so subjects were unaware of the research topic found lower self-esteem, feeling unattractive, and higher depression, introversion, and neuroticism were associated with hair loss, and these effects were more marked in young men for self-esteem, feeling unattractive, and introversion (Wells et al., 1995). While this reveals degree of hair loss as well as age play a role in MPB distress (replicating an earlier finding; Cash, 1992), rate of hair loss has yet to be considered as a possible distressing factor (Wells et al., 1995).

Clearly a proportion of men experience psychological difficulties in conjunction with MPB, however even amongst those who seek medical advice for MPB, few receive psychological attention (de Koning et al., 1990). In the study of general practitioners' treatment of people with androgenetic alopecia there was no significant difference in the treatment of those with psychological problems and those without, only 9% of the men were given psychological advice, and only 3% of the patients were referred to a psychologist or psychiatrist (de Koning et al., 1990). Remembering that half the patients were reported to have simultaneous psychological problems, these statistics indicate psychological wellbeing is largely neglected in the treatment of MPB.

Age and distress related to MPB

Inconsistent research findings to date leave the role age plays in relation to distress about MPB unclear. In a non-clinical sample, amongst five characteristics

belonging to men who attributed greater degrees of distress to personal hair loss, were hair loss experienced before 21 years of age, and a current age of under 26 years (Cash, 1992). This lower distress following MPB in older men reflects the age effect reported in other studies (Wells et al.,1995; DeMuro-Mercon et al., 2000). This pattern may exist because older men have developed coping strategies over time (DeMuro-Mercon et al., 2000), or because according to prevalence statistics (Norwood, 1975), a greater proportion of their peers are likely to also have hair loss. However, younger current age, and younger age of onset was not associated with greater distress in a contrasting study (Budd et al., 2000). This is similar to the mixed results which have been reviewed regarding the role of age in both male body image and aging anxiety. The proposed determinants of threat (Eysenck, 1992; Zaleski, 1996), suggest it may be expected imminence of hair loss that is more closely linked to anxiety rather than current age itself.

Public self-consciousness and perceptions about hair loss

Public self-consciousness has been related to both others' perceptions of men with hair loss and reactions to personal hair loss (Franzoi et al., 1990). Compared to men low in public self-consciousness, men high in public self-consciousness were more likely to believe men with thinning hair would be judged as generally less attractive and less appealing to romantic partners, and in response to their own hair loss they displayed greater concern and greater willingness to try hair loss treatments (Franzoi et al., 1990). However, despite evaluating other balding men as less attractive, balding men high in public self-consciousness did not judge their own

attractiveness more negatively than balding men low in this trait suggesting a self-serving bias was at work, exempting themselves from the standards of attractiveness they judge others with (Franzoi et al., 1990). From the numerous possible explanations for this, none have yet been suggested or isolated.

Public self-consciousness is also associated to anticipatory perceptions of MPB (Franzoi et al., 1990). Of the men with no noticeable hair loss, those high in public self-consciousness were more concerned about future hair loss, however their intention to try a hair loss remedy was no greater than the men lower in public self-consciousness (Franzoi et al., 1990). Unfortunately this finding was generated from a small sub-sample of 39 men with no hair loss, and the concern about future hair loss was measured by response to only three hair loss concern statements, however it was the first and only found research to consider and report attitudes to MPB in men prior to hair loss.

Earlier research has shown that high private self-consciousness intensifies emotions such as elation, depression, sympathy, fear, anger, and pain (Buss, 1980), however in recent findings the public type of self consciousness has emerged in the associations between the negative impressions about balding men and anticipatory concerns about MPB (Franzoi et al., 1990). One explanation for this could be that private self-consciousness is more closely associated with emotions while public self-consciousness is more closely associated with perceptions.

Any role public self-consciousness plays in relation to MPB is likely to simultaneously involve perceptions of how noticeable personal hair loss is to others.

In one study men who regarded their hair loss as highly socially noticeable experienced greater distress (Cash, 1999). This was backed up by a following study showing that perceived noticeability of hair loss to others was significantly associated with the amount of resulting negative effects reported (Budd et al., 2000). In that study men who judged their hair loss to be more noticeable were more likely to be bothered by their hair loss and dissatisfied with their hair appearance. Although individually public self-consciousness and high perceived noticeability of hair loss are associated with greater distress, they may not necessarily be more potent in combination in relation to distress about MPB. As reported, men with MPB and high in public self-consciousness do not rate their own attractiveness as lower (Franzoi et al., 1990), in which case greater perceived noticeability would not be expected to be associated with greater distress. In conjunction with the reported frequency of teasing about MPB (Berscheid et al., 1973), it seems that social self-esteem and social anxiety could be mediating factors in MPB anxiety, particularly for men concerned about negative evaluation or highly aware of their public image. These are merely suggestions, however the interplay of interpersonal characteristics associated with MPB distress is likely to be complex and varied.

2.6 Psychosocial Characteristics Associated with Distress Attributed to MPB

Cash (1992) examined eleven measures of psychosocial functioning and found nine were significantly associated with hair loss distress. Appearance orientation, public self-consciousness, chance locus of control, and powerful others locus of control, were significantly and positively related to extent of distress attributed to

MPB by men with hair loss (Cash, 1992). Higher degrees of each of these characteristics were associated with greater distress. Hair satisfaction, appearance evaluation, body areas satisfaction, sexual self-confidence, and social self-esteem, had significant inverse relationships with distress attributed to MPB by men with hair loss (Cash, 1992). Lower degrees of each of these characteristics were associated with greater distress. Only social anxiety and internal locus of control were not significantly related to this type of distress (Cash, 1992).

2.7 Literature Review Summary and Research Aims

In summary, the previous research demonstrates that physical appearance is a salient concern for men (Berscheid et al., 1973; Tucker, 1982; Mishkind et al., 1986; Davis et al., 1993; American Society for Aesthetic Plastic Surgery, 2002). Hair loss is judged to impair physical attractiveness (Cash, 1990; Franzoi et al., 1990), and MPB is reported to be a negative experience (Cash, 1992; Budd et al., 2000). MPB has even been associated with impaired psychological functioning (de Koning et al., 1990; Wells et al., 1995; Venneman, 1997; Budd et al., 2000). Unfortunately this common, yet apparently undesirable condition has few effective treatments (Bertolino, 1993; DermMatch, 2001; Bader & Trued, 2002). These characteristics give reason to explore the probable apprehension or distress some men may experience in anticipation of MPB.

Future anxiety is an emotion characterized by uncertainty, and which is experienced in anticipation of an adverse event (Zaleski, 1996). Considering the

apparent negative perceptions and experiences of MPB, in conjunction with the unpredictable nature of the onset, rate, and extent of hair loss (Norwood, 1975), it is therefore assumed that some men will experience some degree of future anxiety in anticipation of personal hair loss. Cash (1992) produced psychosocial characteristics associated with the distress that balding men attributed to their hair loss but no known research has carefully examined the attitudes towards MPB before it occurs.

Before being able to minimize or prevent anxiety in anticipation of MPB a scale of future anxiety about MPB is needed for measurement and to identify the particular issues surrounding hair loss which are of most concern to men. Identification of other perceptions, traits, and emotions, associated with future anxiety about MPB are also needed to provide an understanding of the nature of this emotion and to identify the types of men most vulnerable to future anxiety about MPB. The purpose of the present study is therefore to develop a measurement scale of future anxiety about MPB and to identify a combination of expectations, traits, and emotions which best predict future anxiety about MPB. Results will contribute to the wider understanding of anxiety in general, anticipatory emotions, male body image, and prediction.

The selection of the particular independent variables which will be included, and the development of the scale to measure future anxiety about MPB, are based on indications from previous research of factors which might be related to, or describe, this emotion. Using a sample of young men who have not yet personally experienced significant hair loss, subjective self-report measures of trait anxiety, appearance orientation, body area satisfaction, locus of control, self-consciousness, social anxiety,

and social self-esteem will be included to identify psychosocial characteristics associated with future anxiety about MPB.

In addition, the four proposed determinants of future anxiety in general, will be examined for their ability in predicting future anxiety specific to MPB (Eysenck, 1992; Zaleski, 1996). These include a) men's predictions of the probability they will personally experience hair loss, b) how imminent they expect the onset of hair loss to be, c) how undesirable the men rate hair loss as being, as well as d) their confidence in their ability to control and cope with hair loss when it occurs.

Chapter Three

Method

3.1 Participants

The participants in this study were 173 males aged between 18 years and 35 years with a mean age of 21.79 years (SD = 3.55 years). The majority of the sample were New Zealanders of European/Pakeha descent (87%), 2.4% were New Zealanders of Maori descent, 1.2% were Asian, and 9.4% identified most closely with another ethnicity. Most participants were single (89.5%), and 0.6% were separated or divorced, compared to 9.9% who were married, or in a relationship. In terms of the highest level of education completed, few participants had not completed high school (1.7%), 64.2% had completed high school, 12.7% had completed a tertiary qualification such as a certificate or diploma, 16.8% had completed a university degree, and 4.6% had completed a university postgraduate degree. Participants were recruited in Christchurch at the University of Canterbury and Lincoln University.

Because this study focuses on anxiety before significant hair loss occurs, only participants who rated themselves as Type I (78.5%), Type II (17.4%), or Type III (4.1%) on the Norwood Male Pattern Baldness Classification System (Norwood, 1975), were included in the sample.

3.2 Measures

Measurements were collected in a written self-report questionnaire. To measure the subjective perceptions of hair loss and other self-perceptions examined in this study, the use of a self-report measure alone was considered appropriate and sufficiently accurate. The questionnaire began with questions about age, ethnicity, marital status, and education level (see Appendix A). Individual questions were included about the use and frequency of use of strategies and products to stop, prevent, or hide hair loss, as well as the degree of personal hair loss expected in the next ten years. The following scales and additional measures were included in the questionnaire.

State-Trait Anxiety Inventory – Trait scale (STAI-T)

The STAI-T (Spielberger, Gorsuch, & Lushene, 1970), is a 20-item scale which asks participants to respond with reference to how they generally feel, was designed to measure the differences in individual's relatively stable disposition towards anxiety-proneness. Theoretically it would be predicted that those high in trait anxiety would be anxious in response to a wider selection of situations. The 4-point Likert rating scale allows a minimum score of 20 and a maximum score of 80.

From a sample of 253 male undergraduate students at Florida State University, the mean score was 37.68 with a standard deviation of 9.69 and alpha reliability of .90 (Spielberger et al., 1970). High test-retest reliabilities ranging from 0.73 to 0.86 for

samples of males (Dreger, 1978) indicate trait anxiety scores are not buffeted by situational fluctuations in anxiety. The alpha reliability coefficients for the trait scale range from 0.86 to 0.92 (Dreger, 1978). Construct validity was indicated by a high correlations with the Taylor and IPAT anxiety scales (Katkin, 1978). Concern that the STAI-T scale may measure two constructs rather than one, has previously been expressed (Wadsworth, 1977; Bieling, Antony, & Swinson, 1998).

Appearance Orientation scale (AO) and Body Areas Satisfaction Scale (BASS)

Two subscales of the Multidimensional Body-Self Relations Questionnaire (Cash, 2000) were used. The AO scale measures the degree of investment people have in their own physical appearance. It gives an indication of the amount of effort people devote to their appearance and how important their looks are to them. The 12 items are rated on a five-point Likert scale (from *definitely disagree* to *definitely agree*) which are averaged to give a total AO score between 1 and 5. Higher scores indicate greater appearance orientation. In the BASS individuals rate their degree of satisfaction-dissatisfaction with specific areas of their body so overall this gives an indication of how content people are with their body size and appearance. The nine items are rated on a five-point Likert scale (1 = *very dissatisfied*, to 5 = *very satisfied*) which are averaged so total BASS scores can range from 1 to 5.

The AO scale and the BASS were each developed as single factor subscales. Normative scores and sound reliabilities for the AO scale and the BASS based on

large samples have been produced and are reported in the manual (Cash, 2000). For males over 18 years the mean AO scale score is 3.49 (SD = 0.68), and the mean BASS score is 3.5 (SD = 0.63). For males the Cronbach's alpha is 0.88 for the AO scale, and 0.77 for the BASS, and the one month test-retest reliabilities are 0.89 for the AO scale, and 0.86 for the BASS. Both subscales have sufficient internal consistency and stability (Cash, 2000).

Locus of Control Scale (LOC)

Three 8-item scales measure independent components of the locus of control construct (Levenson, 1981). The internal subscale (LOC-I), measures the perceived control people have over their own life. The two external dimensions are the powerful others subscale (LOC-P) which measures the extent people believe their life is controlled by others, and the chance subscale (LOC-C) which measures the degree to which people believe outcomes in their life are influenced by chance. Using a 6-point Likert scale, scores for each subscale can range between 0 and 48. Because the LOC is designed to measure three factors which are independent of each other, it is possible for an individual to get high or low scores on all 3 scales. A low score indicates a low expectancy of control from the particular source while a high score indicates a high expectation of control from that source. Unlike many scales measuring mental health and wellbeing characteristics, one type (or combination of types) of control is not universally more desirable or more appropriate than the alternative sources of control (Levenson, 1981). Anxiety and locus of control have been described as conceptually

separate measures with anxiety being associated with feelings of lack of control over the environment (Ray & Katahn, 1968).

Similar to results produced in an adult sample, Levenson (1981) reported Kuder-Richardson reliabilities for a student sample of 0.64, 0.77, and 0.78 for the LOC-I, LOC-P, and LOC-C scales respectively. Spearman-Brown split-half reliabilities reported were 0.62, 0.66, and 0.64 for the LOC-I, LOC-P, and LOC-C scales respectively, and test-retest reliabilities for one-week and seven-week intervals ranged between 0.60 and 0.79. The three scales have high internal consistency and are not correlated with social desirability (Levenson, 1972). For most samples, scores on the LOC-I scale are higher than on the LOC-P or LOC-C scales, and the LOC-P and LOC-C scales often correlate with each other and minimally to the LOC-I scale, perhaps signalling the internal versus external differentiation (Levenson, 1981). Rotter's Internal-External Locus of Control Scale correlates positively with both LOC-P and LOC-C scales but negatively with the LOC-I scale (Levenson, 1981). This supports convergent validity of the external LOC-P and LOC-C scales however across different samples these correlations are considerably smaller for the LOC-P than the LOC-C scale (Levenson, 1981). Factor analysis using Kaiser's varimax method empirically supported Levenson's theoretically developed three factor scale in a sample of 329 undergraduates (Levenson, 1981).

Revised Self-Consciousness Scale (SCSR)

The SCSR (Scheier & Carver, 1985), consists of three subscales. The first measures private self-consciousness (SCSR-PR) refers to a person's attunement to internal personal characteristics such as beliefs, attitudes, and feelings. The public self-consciousness scale (SCSR-PU) is a focus on the characteristics of the self which are observable to others and displayed in overt behavioural expressions. The third subscale measures social anxiety (SCSR-SA) which is presumed to be rooted in a focus on public self-consciousness but occurs when combined with concern about social evaluation. The private, public, and social anxiety subscales have 9, 7, and 6 items respectively and each item is scored from 0 (*not at all like me*) to 3 (*a lot like me*).

Norms for each scale were produced in a sample of 213 undergraduate men and the means were 15.5 ($SD = 4.8$) for the SCSR-PR, 13.5 ($SD = 4.2$) for the SCSR-PU, and 8.8 ($SD = 4.3$) for the SCSR-SA (Scheier & Carver, 1985). Reliability scores demonstrate internal consistency for the subscales of theSCSR. Cronbach's alpha coefficients are 0.75, 0.84, and 0.79 for the SCSR-PR, SCSR-PU, and SCSR-SA respectively (Scheier & Carver, 1985). Four week test-retest correlations are 0.76, 0.74, and 0,77 for the SCSR-PR, SCSR-PU, and SCSR-SA respectively (Scheier & Carver, 1985). Factor analysis of this revised scale indicated three distinct factors, with similar loadings on each item to earlier factor analysis of the original version (Scheier & Carver, 1985).

Texas Social Behavior Inventory – Short Form A (TSBI-A)

The TSBI-A is a shorter version of the original Texas Social Behavior Inventory (Helmreich & Stapp, 1974), and has 16 statements about confidence in social situations, in groups of people, and interacting with strangers. The TSBI-A is measured with a five-point Likert format and scores can range from 0 to 64 with higher scores indicating greater social self-esteem. In a sample of 238 male undergraduates the mean score for TSBI-A was 40.45 ($SD = 8.87$), with a range of scores from 13 to 64 (Helmreich & Stapp, 1974). While reliability specific to the TSBI-A is yet to be reported, the original 32 item version of the Texas Social Behavior Inventory has alternate-form reliability of 0.89 indicating internal consistency of the scale (Helmreich & Stapp, 1974), and in a sample of 238 volunteers the Cronbach's reliability alpha was 0.92 (McIntire and Levine, 1984). Construct validity for the original Texas Social Behavior Inventory was indicated with a correlation of 0.52 ($p < 0.001$) with the self-esteem scale of the California Personality Inventory (Gough, 1964, cited in McIntire & Levine, 1984). The TSBI-A is highly correlated ($r = 0.973$ for males) with the 32 item long form and factor analyses have shown consistent structures for the two versions (Helmreich & Stapp, 1974).

Norwood Male Pattern Baldness Classification System

The questionnaire contained one question which illustrated eight hair patterns from the Norwood Male Pattern Baldness Classification System (see Figure 1;

Norwood, 1975), with a box beside each diagram. Participants were asked to tick the box beside the type which most closely represented their current hair pattern.

Future Anxiety about MPB Scale (FAMPB)

To measure the dependent variable, the FAMPB Scale was developed using 26 items which are rated on a 5-point Likert format from 1 (*strongly disagree*) to 5 (*strongly agree*). In the questionnaire (see Appendix A), these were question numbers 109 (item number 1), 111 to 118 (items 2 to 9), 120 to 135 (items 10 to 25), and 137 (item 26). Possible scores range from 26 to 130 with higher scores intended to indicate greater future anxiety about MPB. In this scale item numbers 1, 3, 5, 8, 14, 16, 19, 20, 22, and 26 were reverse scored. The questions were developed based on readings about male body image in general, the nature of anxiety, Zaleski's concept of future anxiety (1996), and the psychological effects MPB has on people once they have experienced it (Cash, 1992, 1999; Franzoi et al., 1990).

Additional measures

To examine the usefulness of the four proposed predictors of general future anxiety in predicting future anxiety specific to MPB the following measures were taken. Individual questions asked about expected likelihood of future personal hair loss, perceived undesirability of hair loss, and confidence in ability to cope with hair loss. Another question asked at what age the participant expected their hair loss to

begin so the current age of the participant was subtracted from this to give a measure of expected imminence of hair loss.

3.3 Procedure

Potential participants who looked between the ages of 18 and 35 years were approached at Lincoln University and the University of Canterbury campuses. The researcher randomly asked passers-by if they were interested in completing a questionnaire for a study on male body image and attitudes to changes in physical appearance with aging, which included questions about social confidence, attitudes to hair loss, self-consciousness, and emotion. Participants were informed that participation was voluntary, and that the questionnaire which could be completed in their own time and returned by freepost or e-mail, would take approximately 22 minutes to complete. The researcher clearly explained that participation was confidential and anonymous because no names were required and the provision of a contact address for the summary of results was optional. A separate piece of paper was provided for these contact details and participants were informed that this would be stored separately from their completed questionnaire to maintain anonymity.

Men who were interested in participating were given a questionnaire. Attached to the front of every questionnaire was an information sheet (see Appendix A), which introduced the study, outlined participant rights, that completion of the questionnaire implied understanding of these rights and consent to participate, and provided contact details of the researcher, supervisor, and a local counsellor.

On completion of the data analysis all participants who requested feedback about the results of the study and provided their contact details were posted or e-mailed a summary sheet about the main findings of this study.

Data Analysis

Descriptive statistics were produced to illustrate the characteristics of the sample. Following this, factor analyses of each measurement scale implemented in this study were completed to create the most interpretable factor structure to measure the intended variables for this sample. Reliability of each scale was analysed after items that did not factor or that loaded on to more than one factor were removed from the scales. An initial regression analysis using the stepwise method was used to sift out useful psychosocial predictors (as measured by each of the total scale scores) of future anxiety in young men about MPB. In order to investigate the role of the four proposed determinants of future anxiety (Eysenck, 1992; Zaleski, 1996) in predicting future anxiety about MPB, the next step in the data analysis was to calculate correlations for each of these four possible predictors, with the total FAMPB Scale score. Variables which had a medium or large significant relationship with the total FAMPB Scale score were added to the original list of psychosocial independent variables and a second stepwise regression analysis was produced.

Chapter Four

Results

4.1 Descriptive Sample Statistics

In response to the personal hair loss questions, Table 1 shows that few participants had ever used a product, service, or strategy to stop, prevent, or hide hair loss. Of all participants, only 2.89% had ever used either shampoo or conditioner for hair loss, regrowth formula or rub on gels, hair dye, or shaved all their hair short to treat or camouflage hair loss. No participants had ever used a hair loss concealer, taken oral drugs or vitamins for hair, or had a hair transplant.

Table 2 shows that while 31.8% of participants agreed or strongly agreed that it is extremely unlikely that their hair will fall out, recede, or thin, in the future, 44.5% of participants disagreed or strongly disagreed with this statement. As displayed in Table 3, in the next 10 years approximately half the participants (51.7%) expected no personal hair loss, while the rest of the participants expected some degree of hair loss. The average age at which participants expected their hair loss to begin was 41.07 years (SD = 13.19, median = 40). Half the respondents (50%) requested a summary of the findings of this research indicating a fair degree of interest in this topic.

Table 1

Proportion of Participants According to Types of Previous Hair Loss Coping Strategy Use (N = 173)

Strategy type	Never Used	Had previously used
Shampoo or conditioner for hair loss	170 (98.3)	3 (1.7)
Regrowth formula and rub on gels	172 (99.4)	1 (0.6)
Hair loss concealer	173 (100)	0 (0)
Oral drugs	172 (99.4)	1 (0.6)
Vitamins for hair	173 (100)	0 (0)
Hair transplant	173 (100)	0 (0)
Visited doctor, dermatologist, or hair loss clinic about hair	172 (99.4)	1 (0.6)
Other strategy	170 (98.3)	3 (1.7)

Note. Numbers in brackets indicate percentages.

Table 2

Responses to the Statement, "It is extremely unlikely that my hair will fall out, recede, or thin, in the future" (N = 173)

Response	Number of participants
Strongly disagree	37 (21.4)
Disagree	40 (23.1)
Neither agree nor disagree	41 (23.7)
Agree	31 (17.9)
Strongly agree	24 (13.9)

Note. Numbers in brackets indicate percentages.

Table 3

Amount of Personal Hair Loss Expected in the Next 10 Years (N = 172)

Amount of loss	Number of participants
None	89 (51.7)
Slight	53 (30.8)
Considerable	19 (11.0)
Significant	10 (5.8)
Extensive	1 (0.6)

Note. Numbers in brackets indicate percentages.

4.2 Factor Analysis

The factor structure for each scale used in the present study was analysed using SPSS with maximum likelihood extraction method and direct oblimin rotation to check that each item was connected to the factor it was intended to measure. Despite suggestions and cautions that the STAI-T scale measures two constructs (Wadsworth, 1977; Bieling, Antony, & Swinson, 1998), it was designed to measure a single factor and only one factor was identified in factor analysis of the scale in this study (Table 4). Factor loadings consistent with a single factor scale were also found for the AO scale measuring appearance orientation (Table 5), BASS measuring body areas satisfaction (Table 6), and TSBI-A measuring social confidence (Table 7).

Table 4

Factor Loading for the STAI-T

	Factor 1
STAI-T 15	0.702
STAI-T 4	0.675
STAI-T 10	0.671
STAI-T 13	0.659
STAI-T 18	0.650
STAI-T 20	0.644
STAI-T 9	0.626
STAI-T 16	0.611
STAI-T 1	0.595
STAI-T 12	0.582
STAI-T 11	0.558
STAI-T 8	0.557
STAI-T 3	0.555
STAI-T 5	0.537
STAI-T 19	0.534
STAI-T 17	0.526
STAI-T 7	0.473
STAI-T 6	0.422
STAI-T 14	0.306
STAI-T 2	0.297

Note. Factor 1 accounts for 32.449% of the variance.

Table 5

Factor Loading for the AO Scale

	Factor 1
AO 8	0.715
AO 4	0.672
AO 5	0.667
AO 1	0.642
AO 3	0.615
AO 7	0.599
AO 2	0.563
AO 10	0.536
AO 11	0.534
AO 12	0.505
AO 9	0.458
AO 6	0.409

Note. Factor 1 accounts for 33.985% of the variance.

Table 6

Factor Loading for the BASS

	Factor 1
BASS 4	0.804
BASS 9	0.722
BASS 5	0.701
BASS 6	0.663
BASS 7	0.594
BASS 3	0.492
BASS 1	0.485
BASS 2	0.396
BASS 8	0.347

Note. Factor 1 accounts for 35.615% of the variance.

Table 7

Factor Loading for the TSBI-A

	Factor 1
TSBI 4	0.719
TSBI 2	0.694
TSBI 12	0.658
TSBI 16	0.606
TSBI 1	0.598
TSBI 3	0.579
TSBI 9	0.542
TSBI 5	-0.521
TSBI 15	0.491
TSBI 6	0.489
TSBI 10	0.456
TSBI 8	0.426
TSBI 11	0.368
TSBI 7	0.342
TSBI 13	0.301
TSBI 14	0.255

Note. Factor 1 accounts for 27.104% of the variance.

Factor analyses were computed to determine the proposed three factors of both the LOC Scale and the SCSR. A three factor structure for the LOC Scale and the SCSR was only supported when items which cross-loaded on more than one factor or did not factor into its intended subscale were removed. From the LOC Scale, items excluded were item numbers 9 from the LOC-I scale, 3, 11, 17, and 20 from the LOC-P scale, and 16 from the LOC-C scale. From the SCSR removed items were numbers 6, 8, and 12 from the SCSR-PR, 2 from the SCSR-PU, and 11 from the SCSR-SA.

The factor loadings and factor correlations for the LOC Scale after the removal of these items are shown in Table 8. The factor loadings for the LOC-C scale ranged from 0.239 to 0.665, from 0.147 to 0.603 for the LOC-I scale, and from 0.418 to 0.568 for the LOC-P scale. The correlations between the LOC subscales are very small indicating that the LOC Scale measures three separate sources of locus of control which are only extremely weakly related to each other.

Factor loadings and factor correlations following item removal for the SCSR are shown in Table 9. Factor loadings for the SCSR-PR ranged from 0.311 to 0.796, from 0.460 to 0.697 for the SCSR-PU, and from 0.406 to 0.723 for the SCSR-SA. Small relationships between the public self-consciousness, private self-consciousness, and social anxiety factors are indicated by the small correlations in Table 9.

Table 8

Factor Loadings and Factor Correlations for Items of the LOC Scale

Item number	Factor 1	Factor 2	Factor 3
LOC-C 2	0.665		
LOC-C 6	0.560		
LOC-C 14	0.461		
LOC-C 7	0.422		
LOC-C 10	0.418		
LOC-C 24	0.307		
LOC-C 12	0.239		
LOC-I 19		0.603	
LOC-I 21		0.530	
LOC-I 23		0.515	
LOC-I 5		0.383	
LOC-I 18		0.299	
LOC-I 1		0.213	
LOC-I 4		0.147	
LOC-P 15			0.568
LOC-P 8			0.514
LOC-P 13			0.463
LOC-P 22			0.418

Note. The 3 factors explain a total of 24.149% of the variance.

Correlation Matrix for three LOC factors following scale reduction

Factor	1	2	3
1	1.000	-0.09041	-0.322
2		1.000	0.01784
3			1.000

Note. Factor 1 = LOC-C; Factor 2 = LOC-I; Factor 3 = LOC-P.

Table 9

Factor Loadings and Factor Correlations for Items of the SCSR

Item number	Factor 1	Factor 2	Factor 3
SCSR-PU 16	0.697		
SCSR-PU 5	0.680		
SCSR-PU 10	0.640		
SCSR-PU 20	0.626		
SCSR-PU 18	0.569		
SCSR-PU 13	0.460		
SCSR-SA 9		0.723	
SCSR-SA 3		0.686	
SCSR-SA 15		0.652	
SCSR-SA 22		0.586	
SCSR-SA 7		0.406	
SCSR-PR 17			0.796
SCSR-PR 1			0.652
SCSR-PR 4			0.483
SCSR-PR 14			0.458
SCSR-PR 19			0.311

Note. Rotation converged in 8 iterations. The 3 factors explain a total of 39.808% of the variance.

Correlation Matrix for three SCSR factors

Factor	1	2	3
1	1.000	0.212	0.311
2		1.000	0.129
3			1.000

Note. Factor 1 = SCSR-PU; Factor 2 = SCSR-SA; Factor 3 = SCSR-PR.

The structure of the FAMPB Scale supported a single factor of future anxiety about MPB. The single factor structure accounted for 39.344% of the variance. Table 10 shows the factor loadings for the FAMPB Scale.

Table 10

Factor Loading for FAMPB Scale

	Factor 1
FAMPB 15	0.845
FAMPB 11	0.814
FAMPB 24	0.805
FAMPB 6	0.799
FAMPB 25	0.798
FAMPB 10	0.790
FAMPB 17	0.780
FAMPB 13	0.757
FAMPB 7	0.732
FAMPB 9	0.715
FAMPB 12	0.703
FAMPB 4	0.681
FAMPB 20	0.679
FAMPB 18	0.672
FAMPB 2	0.640
FAMPB 23	0.638
FAMPB 21	0.620
FAMPB 3	0.595
FAMPB 19	0.428
FAMPB 26	0.416
FAMPB 1	0.270
FAMPB 14	0.267
FAMPB 8	0.263
FAMPB 5	0.228
FAMPB 22	0.128
FAMPB 16	0.112

Note. Factor 1 accounts for 39.344% of the variance.

4.3 Scale Descriptive and Reliability Data

The range of total scores, means, standard deviations, and alpha reliability coefficients for all scales or subscales following factor analysis reduction are displayed in Table 11. The recommended standard of reliability for this level of research is 0.7 or above (Nunnally, 1978; Aron & Aron, 1994). The reviewed research produced reliabilities which hover around 0.7 for the LOC subscales (Levenson, 1972, 1981), however in this sample the reliability coefficients for the LOC subscales are low, particularly for the internal and the powerful others subscales (with Cronbach's alphas of 0.4924 and 0.5915 respectively).

Table 11

Descriptive Data and Reliability Estimates for Scales Following Factor Analysis

Scale	Range	Mean	*SD*	Alpha coefficient
STAI-T	21-64	43.03	8.605	0.8996
AO	1-5	3.14	0.633	0.8537
BASS	2-5	3.51	0.587	0.8142
LOC-I	15-40	29.19	5.313	0.4924
LOC-P	0-19	8.63	4.605	0.5915
LOC-C	0-33	15.83	6.692	0.6322
SCSR-PR	1-18	9.95	3.710	0.6921
SCSR-PU	0-18	9.98	3.563	0.7912
SCSR-SA	0-15	7.49	3.569	0.7507
TSBI-A	19-58	39.14	8.216	0.7786
FAMPB	30-112	61.37	16.310	0.9289

4.4 Multiple Regression Assumption Checks

Stepwise multiple regression was used to test the main research question to reveal what psychosocial characteristics in young males collectively predict future anxiety about MPB. The characteristics of the sample and data were evaluated for its fulfilment of the assumptions of multiple regression. Only total scale or total subscale scores were used, and no item contributed to more than one variable, indicating that singularity did not exist. The data were screened for outliers. The scatterplot of standardized residuals shows most scores were centred round 0 with no visible pattern emerging (Appendix B, Figure B1), and the normal probability plot shows there was little deviation from normality (Appendix B, Figure B2). These demonstrate that the data fit the multiple regression assumptions of normality, linearity, and homoscedasticity (Appendix B, Figure B1 and B2).

The sample size of 173 participants with one independent variable and ten independent variables was sufficiently sized for standard multiple regression, however conservative estimates have suggested a cases-to-independent variable ratio of 40 to 1 for stepwise regression since statistical regression can produce results which are only generalizable if the sample size is large (Tabachnick & Fidell, 2001). Caution will therefore be taken when interpreting the results with regard to their limited generalizability.

The correlations between all the independent variables used in the first and second stepwise regression analyses, and the dependent variable of the total FAMPB Scale score (Table 12), indicate the possibility that multicollinearity existed. In Table

12 it should be noted that because actual age was subtracted from expected age of hair loss onset to produce the imminence score, a lower score indicated greater imminence. Total scores of the STAI-T and LOC-P, as well as lack of confidence in coping ability, and undesirability on MPB, were the only independent variables which were significantly correlated with the dependent variable (total FAMPB Scale score) with a score of greater than 0.3. This indicates that the rest of the independent variables had a smaller than recommended size relationship with the dependent variable (Pallant, 2001). Secondly, although not exceeding the recommended maximum correlation ($r = 0.9$ and above; Pallant, 2001), two independent variables were quite highly related to each other as indicated by the correlation between the total AO and SCSR-PU scores ($r = 0.728$, 2-tailed, $p < 0.01$). However, AO and SCSR-PU were not considered sufficiently similar to combine into a single variable, and both showed a small but significant relationship to FAMPB, therefore neither was excluded from the stepwise regression analysis. Overall the threat of multicollinearity was not considered to jeopardize the suitability and sufficiency of the data for multiple regression analysis.

Table 12

Correlations Between Total Variable Scores (N = 173)

	FAMPB	STAI-T	AO	BASS	LOC-I	LOC-P	LOC-C	SCSR-PR	SCSR-PU	SCSR-SA	TSBI-A	Lack of coping confidence	Undesirability	Imminence	Liklihood
FAMPB	1	.355**	.261**	-.210**	-.187*	.337**	.211**	-.033	.234**	.160*	-.247**	-.492**	.422**	-.063	.136
STAI-T		1	.079	-.334**	-.393**	.323**	.218**	.349**	.162*	.437**	-.584**	-.202**	.046	.058	-.082
AO			1	-.018	.035	.225**	.018	.153*	.728**	.094	-.019	-.189*	.212**	-.003	-.062
BASS				1	.185*	-.171*	-.033	-.057	.019	-.127	.325**	.212**	-.061	-.136	.043
LOC-I					1	-.135	-.096	.056	.073	-.053	.278**	.215**	.056	-.017	.031
LOC-P						1	.307**	.085	.214**	.237**	-.233**	-.174*	.094	-.080	.024
LOC-C							1	.103	.081	.176*	-.142	-.156	.173*	.079	-.004
SCSR-PR								1	.386**	.204**	-.159*	.158*	-.066	.029	.070
SCSR-PU									1	.215**	-.091	-.127	.205**	.027	.007
SCSR-SA										1	-.585**	-.117	-.079	-.013	.042
TSBI											1	.189*	.037	-.098	-.030
Lack of coping confidence												1	-.118	-.152	.070
Undesirability													1	-.029	-.019
Imminence														1	-.560**
Liklihood															1

* Significance (2-tailed) at 0.05 level

**Significance (2-tailed) at 0.01 level

4.5 Stepwise Regression Method

The use of stepwise regression is controversial and full consideration of the criticisms about the method were carefully given, alongside the qualities of alternative methods. In stepwise regression the opportunity for overfitting of data and the dependence on chance in a single sample again highlights the need for conservative consideration of the generalizability of the results (Tabachnick & Fidell, 2001). Stepwise regression was considered to be appropriate as opposed to regression methods in which the researcher defines order of individual or blocks of variable entry into the equation. In stepwise regression independent variables are systematically entered in an order defined entirely by statistical criteria, beginning with the variable which has the highest bivariate correlation with the dependent variable (Aron & Aron, 1994). Of the remaining variables, the one with the greatest contribution to R^2 is drawn into the equation. The steps continue until all variables in the equation make statistically significant contributions to the predictive strength of the combination, and no excluded variables make a significant improvement (Aron & Aron, 1994).

Limitations of the meaning of the results are recognized and acknowledged. The stepwise method was used in this data analysis because the topic was exploratory so included many potential predictors. The research question was interested in the predictive power of ten particular psychosocial variables, and four proposed determinants of future anxiety. This method was able to isolate a subset of independent variables, each of which significantly improved the overall predictive power of the variables it is combined with. In predicting future anxiety about MPB, the proportionate reduction in error is not further reduced, and the predictive power is

not enhanced with the inclusion of any other potential variable. Cause and effect relationships are indeterminable from this method.

4.6 First Stepwise Regression Analysis

The ten independent variables entered in to the first stepwise regression analysis were total scores of the STAI-T, AO, BASS, LOC-C, LOC-P, LOC-I , SCSR-PR, SCSR-PU, SCSR-SA, and TSBI-A scales. The dependent variable was total FAMPB Scale score. A model summary of the contribution each predictor made to R^2 is displayed in Table 13. This shows that the combination of trait anxiety, powerful others locus of control, appearance orientation, and private self-consciousness, account for 22.8% of the variance in total FAMPB Scale scores.

Results of the stepwise regression showing the standardized ß weights are displayed in Table 14. The model of four predictors (trait anxiety, powerful others locus of control, appearance orientation, and private self-consciousness) is significantly related to the total FAMPB Scale scores, $F(4, 168) = 13.688, p < 0.05$.

Table 13

Contribution of Variables to R^2 in the First Stepwise Regression Analysis

	R^2	Adjusted R^2	Std. error of the estimate
1. STAI-T	0.126	0.121	15.294
2. STAI-T			
LOC-P	0.181	0.171	14.847
3. STAI-T			
LOC-P			
AO	0.216	0.203	14.565
4. STAI-T			
LOC-P			
AO			
SCSR-PR	0.246	0.228	14.332

Note. The dependent variable is total FAMPB Scale score.

Table 14

Coefficients of the First Stepwise Regression Analysis

	Unstandardized coefficients		Standardized coefficients	t	Sig.	95% Sig. confidence interval for B	
	B	Std. error	Beta			Lower bound	Upper bound
(Constant)	18.127	7.541		2.404	0.017	3.239	33.015
STAI-T	0.643	0.143	0.339	4.501	0.000	0.361	0.925
LOC-P	0.686	0.257	0.194	2.669	0.008	0.179	1.194
AO	5.645	1.791	0.219	3.152	0.002	2.110	9.179
SCSR-PR	-0.813	0.318	-0.185	-2.557	0.011	-1.440	-0.185

Note. The dependent variable is total FAMPB Scale score.

4.7 Correlations

The Pearson *r* correlation coefficient showed a significant but small relationship between current age and total FAMPB Scale score ($r = -0.162$, $p < 0.05$, 2 tailed). The age at which participants expected hair loss to begin ($r = -0.119$, 2-tailed), and the amount of hair participants expected to lose in the next ten years ($r = 0.095$, 2 tailed), were not significantly related to the total FAMPB Scale score.

Table 15 displays the bivariate correlations between the total FAMPB scale score and each of the four proposed determinants of future anxiety in relation to MPB. Perceived undesirability of MPB showed a significant medium relationship and lack of confidence in ability to cope with MPB showed a significant large relationship to the total FAMPB Scale score, so these two variables were added to the list of original independent variables which were included in the first stepwise regression analysis, and a second stepwise regression analysis was run.

Table 15

Relationship Between Total FAMPB and the Proposed Determinants of Future Anxiety

	Pearson *r* correlation coefficients
Perceived likelihood of MPB	0.136
Expected imminence of MPB	-0.063
Perceived undesirability of MPB	0.422**
Lack of confidence in ability to cope with MPB	-0.492**

** 2-tailed, significance at 0.01 level.

4.8 Second Stepwise Regression Analysis

This analysis was used to indicate whether the addition of these two proposed determinants of future anxiety improved the predictive power already provided by the subset of psychosocial predictors selected in the first stepwise regression analysis.

The contribution to R^2 of the emerging variables at each step are displayed in Table 16. This shows that the combination of lack of confidence in ability to cope with MPB, perceived undesirability of MPB, trait anxiety, and powerful others locus of control account for 45.3% of the variance in total FAMPB Scale scores.

Results of the second stepwise regression showing the standardized ß weights are displayed in Table 17. The model of four predictors (lack of coping confidence, undesirability, trait anxiety, and powerful others locus of control) is significantly related to the total FAMPB Scale scores, $F(4, 168) = 36.594$, $p < 0.05$.

Table 16

Contribution of Variables to R^2 in the Second Stepwise Regression Analysis

	R^2	Adjusted R^2	Std. error of the estimate
1. Lack of confidence in ability to cope	0.242	0.238	14.241
2. Lack of confidence in ability to cope Undesirability	0.376	0.369	12.957
3. Lack of confidence in ability to cope Undesirability STAI-T	0.440	0.430	12.314
4. Lack of confidence in ability to cope Undesirability STAI-T LOC-P	0.466	0.453	12.064

Note. The dependent variable is total FAMPB Scale score.

Table 17

Coefficients of the Second Stepwise Regression Analysis

	Unstandardized coefficients		Standardized coefficients	t	Sig.	95% Sig. confidence interval for B	
	B	Std. error	Beta			Lower bound	Upper bound
(Constant)	11.967	5.215		2.295	0.023	1.671	22.262
Lack of coping confidence	6.937	1.066	0.379	6.505	0.000	4.832	9.042
Undesirability	5.118	0.830	0.351	6.170	0.000	3.480	6.756
STAI-T	0.392	0.114	0.207	3.427	0.001	0.166	0.618
LOC-P	0.606	0.213	0.171	2.842	0.005	0.185	1.026

Note. The dependent variable is total FAMPB Scale score.

Chapter Five

Discussion

The aim of the study was to identify predictors of future anxiety in young men about MPB and the most useful combination of predictors found were lack of confidence in ability to cope with MPB, perceived undesirability of MPB, trait anxiety, and powerful others locus of control. Reliable psychometric scales were refined by factor analyses and the results of this study were produced using stable, and interpretable, independent and dependent variables. The Cronbach's alpha reliability coefficient for the FAMPB Scale was particularly high indicating that the individual items were related to each other and overall produced a consistent measure of future anxiety about MPB. The assumptions for multiple regression analysis were met.

5.1 Sample characteristics

The education level of this sample was high which is a characteristic previously associated with greater body appearance satisfaction (Reboussin et al., 2000), however the majority of participants were also single which has been associated with greater body dissatisfaction (Berscheid et al., 1973; Cooper, 1993, Wilcox, 1997). Although proneness to body dissatisfaction would be likely to exacerbate anxiety related to MPB, these tendencies related to the characteristics of this sample are not in the same direction, so overall the sample is not expected to be

skewed towards a greater or lesser degree of body satisfaction or future anxiety about MPB due to these demographic characteristics.

In this sample of young males who had not yet experienced significant personal hair loss, few had ever used a strategy or product to prevent, stop, or hide hair loss. This supports a previous finding that such coping strategy use was positively associated with degree of hair loss (Cash, 1992). In Cash's sample of men with significant hair loss (1992), degree of loss expected in the next decade was associated with greater distress about MPB, however the degree of hair loss expected in the next decade by participants in this study was not related to future anxiety about MPB.

5.2 Measures

The production and experience of future anxiety is likely to consist of a dynamic interplay between the environment, current motivations, present and previous experience, the self and others, and involve physiological changes and subjective interpretations. Like all emotions, future anxiety is complex and is expected to involve biological, physiological, social, psychological and contextual components. However, subjective perception was assumed to be the key indicator of anxiety experienced and was the sole measurement method in this study, which was considered to be appropriate because future anxiety is proposed to be primarily cognitive (Zaleski, 1996). The FAMPB Scale which was developed measured the dependent variable it was designed to measure with high reliability and a stable single factor structure. The alpha reliability coefficients for the LOC subscales in this study

were low. However a clear, interpretable, three factor structure of the LOC scale was achieved.

5.3 Major findings

The findings of the first stepwise regression analysis show that in this sample the psychosocial characteristics of trait anxiety, powerful others locus of control, appearance orientation, and private self-consciousness, in combination predicted future anxiety about MPB in young men. Men who had a greater personality disposition towards being anxious, who believed their life is controlled by others, who had a lot of personal investment in their appearance, and who were attuned to their internal moods and perceptions, were more likely to experience greater degrees of future anxiety about MPB.

The emergence of trait anxiety as one of these four predictors is consistent with Zaleski's model (1996) and in support of the proposals and findings of other studies (Butler & Mathews, 1987; Rodriguez, 2002), suggesting that people who have a greater tendency towards being anxious, expect and perceive threat in response to a wide range of situations in response to their greater accessibility to anxiety-provoking cognitive schemas. Appearance orientation and powerful others locus of control were individually significantly related to distress attributed to MPB by balding men (Cash, 1992), suggesting they may be linked to anxiety in anticipation as well as in response to MPB. Ray and Katahn (1968) linked anxiety and locus of control according to perceived amount of control over one's life, so the emergence of trait anxiety and

powerful others locus of control suggests that both may reflect an underlying sense of lack of personal, internal control over experiences which contributes to future anxiety about MPB. This is consistent with the reported characteristic of people high in future anxiety who seek and are impressed by others who hold power (Zaleski, 1996), because they may believe control of their life rests with powerful others rather than themselves.

Interestingly, while research by Franzoi, Anderson, and Frommelt (1990) showed public self-consciousness was related to a number of perceptions of and reactions to personal hair loss (which private self-consciousness was not related to), it was private self-consciousness that emerged as one of the four predictors of future anxiety about MPB while public self-consciousness was excluded. Perhaps this is because concerns prior to hair loss are entirely internal so they are noticed by those more sensitive to fluctuations in personal feelings and attitudes, while once hair loss occurs it becomes an increasing threat to those high in public self-consciousness because it is visible so enters the realm where it can be evaluated by others. Supported by the interpersonal factors associated with body image in men such as relationship status and teasing which have surfaced in previous research (Berscheid et al., 1973), this speculation also implies that a proportion of male body image rests in interpersonal perceptions and experiences. The emergence of private self-consciousness is compatible with the suggested explanation for the patterns in the reviewed literature that private self-consciousness is more closely linked to emotions while public self-consciousness is more closely linked to perceptions.

However it is important to remember that the stepwise regression method does not indicate the individual association between public self-consciousness and future anxiety about MPB. The individual correlations between future anxiety about MPB and each type of self-consciousness (Table 12), show that public self-consciousness was significantly related to future anxiety about MPB while private self-consciousness was not. These relationships could be further examined with future research using causal modelling techniques.

Lack of confidence in ability to cope with MPB, and undesirability of MPB, were individually significantly related to future anxiety about MPB, and they were both amongst the predictors which emerged when the four proposed determinants of future anxiety were included in the second stepwise regression analysis, along with trait anxiety and powerful others locus of control. This second superior set of predictors accounted for approximately double the proportion of variance in future anxiety about MPB than the first set of predictors.

On considering the applicability and use of the four proposed determinants of general future anxiety (Eysenck, 1992; Zaleski, 1996), specific to MPB, the second stepwise regression analysis (as well as the individual correlations of these four variables with FAMPB scores), revealed that rather than the temporal characteristics such as the likelihood or imminence of the aversive event being distressing, the actual expected quality of the event (in terms of what it will be like to experience), appears to be more closely related to anticipatory distress. This is a surprising finding since the likelihood and imminence of MPB are unpredictable and uncertainty is a hallmark of anxiety (Monat et al., 1972; Strongman, 1995, 1996). However undesirability and

lack of confidence in ability to cope with MPB are founded on subjective perceptions, and this is consistent with the views of Strongman (1995, 1996), and Zaleski (1996), that cognition is a significant component of anxiety and future anxiety. The emergence of these two variables suggests that future anxiety about MPB may be experienced if men subjectively evaluate it as being a threat to their body image, self-esteem, or other valued personal qualities or experiences.

The emergence of lack of confidence in ability to cope with MPB and undesirability of MPB may also be an indication that participants were victims of the pessimistic future predictions illustrated in previous research (Butler & Matthews, 1988; Cohn & Adler, 1992; Zaleski, 1996), and possibly leading men to underestimate the medical, behavioural, social, emotional, and psychological resources and strategies available to help them to manage MPB when it occurs. If such pessimistic predictions were at play, this would support Zaleski's finding (1996), that those higher in future anxiety were more pessimistic in predicting a future solution to a problem.

Once the onset of personal hair loss has occurred, undesirability of the experience and lack of ability to cope with it remain possible determinants of distress, while imminence and probability of hair loss are expected to be no longer relevant. At this stage the distress related to MPB would no longer be future anxiety. Rather than determining the intensity of future anxiety which was measured in this study, perhaps imminence acts to define future anxiety from state anxiety by the situation of the threatening event in the temporal distance rather than the present time. Although likelihood has previously been identified as a central component of worrying about a

threat (MacLeod et al., 1991), likelihood and imminence might act as prerequisites for future anxiety about MPB, as a measure of personal relevance of the threat. For example, future anxiety about MPB would not be expected if a man was confident that he would never experience personal hair loss. Perceived likelihood of a threat may be a prerequisite to other types of anxiety as well because previous research has shown that high trait anxiety was associated with heightened subjective probabilities of an adverse event occurring (Butler & Matthews, 1998; Rodriguez, 2002).

5.4 Limitations of the Current Study

Results from this sample of predominantly Caucasian New Zealand men are not generalizable to men of different cultures and ethnicities due to the previous research findings that Caucasians experience greater body dissatisfaction, as well as earlier onset, higher prevalence, and greater extent of MPB (Setty, 1970; Bertolino, 1993; Tang et al., 2000; Reboussin et al., 2000; Paik et al., 2001). The majority of men in this sample were likely to ascribe to the ideals of Western culture, and because different cultures are likely to place varying emphasis and value on the importance of physical appearance and what constitutes attractiveness, the threat value of MPB is likely to also vary along with the anticipatory anxiety it provokes.

Unfortunately the spread of ages, and proportions of participants in a relationship versus single participants, were not sufficiently balanced to form comparison groups in this study. This study was therefore unable to offer clarification

of the as yet undecided relationship that age and relationship status have with distress about MPB.

5.5 Suggested Future Research Directions

It was neither the intention, nor within the scope of the present research, to also evaluate how realistic the perceived threat of MPB actually was, by measuring familial hair loss patterns for example. Therefore it is possible that the subjective perceptions regarding the degree of future anxiety currently experienced by participants may have been produced by unrealistic expectations due to prediction errors. Further research is needed to examine the role these cognitions have in producing future anxiety.

It would be useful for a multidimensional measure of future anxiety about MPB to be developed. The scale could potentially include subscales such as perceived threat to romantic relationships, career, or personal wellbeing, and worries about peer teasing, or ability to control and cope with MPB. This would aid in sifting out the areas of most concern.

Future application of the FAMPB Scale is recommended to produce evidence of validity for the findings in the present study. Although the second stepwise regression analysis produced a new set of variables with improved predictive ability, they still only accounted for 45.3% of the variance in future anxiety about MPB. This

suggests there are outstanding factors which are related to this anxiety which have yet to be considered.

Because teasing from peers during childhood is related to lower body image in men (Berscheid et al., 1973), and closely associated with anxiety (Roth et al., 2002), future anxiety about MPB could also partly be a function of childhood teasing. MPB is often negatively evaluated so as well as teasing, another interpersonal factor which would be useful for future studies to consider in relation to distress regarding experienced and future MPB is fear of negative evaluation. Hair loss is visible so its onset introduces a potential source of negative evaluation from others which would particularly exacerbate the threat of MPB for men with a high fear of negative evaluation.

The correlations show that appearance orientation, body areas satisfaction, powerful others locus of control, chance locus of control, public self-consciousness, and social self-esteem are significantly related to both future anxiety about MPB measured in this study (Table 12), and distress following hair loss measured by Cash (1992). Perhaps this is an indication that stress in anticipation of hair loss and following hair loss is associated similar psychosocial characteristics. Future research could explore whether the same types of men are vulnerable to anxiety in anticipation and experience of visible aging processes such as MPB.

A longitudinal study would indicate whether men who experience greater future anxiety in anticipation of MPB are more likely to experience and to attribute negative experiences to their MPB once it occurs. This in turn would indicate the

likelihood of the use and influence of prediction errors in determining future anxiety. This would also enable men most at risk of future anxiety about MPB or distress in the face of hair loss to be identified so if desired their anxiety can be addressed to inhibit its escalation or existence. Similarly, the relationship between aging anxiety and future anxiety about MPB is yet to be established to indicate whether men who are concerned about MPB also experience distress in anticipation of other aging processes, particularly those which are visible.

Research indicates that few men with concerns about MPB seek psychological advice (de Koning et al., 1990), and although the reasons for this remain speculative, until medical researchers and the hair product industry develop more effective treatments for MPB, the best approach in the meantime is likely to be a psychological one. Psychological research is needed to identify successful strategies for coping with the anticipation and onset of MPB. MPB is a common experience which for many men involves no significant disruption to wellbeing indicating that resilience factors do exist. Although an educational course was unsuccessful in remedying unrealistic optimism about aging (Miller, 1996), it is unknown how effective education is in addressing unrealistic pessimism about aging. As research suggests (Lasher & Faulkender, 1993; Neikrug, 1998), knowledge about aging processes may be a tool useful in counteracting anxiety about aging so a randomised controlled study of the effects of education about MPB causes, progression, available treatments, and coping strategies, on anxiety related to MPB would nudge us closer to both understanding the roots of future anxiety about MPB, and to developing recommendations for anxiety-prone men. Consideration of self-esteem and general body image, and further analysis of the role of the religious, humanistic, moral, and scientific beliefs (reported in

Zaleski, 1996), in relation to future anxiety about MPB would be useful to include for the same purpose. If any of these consistently emerge as resilience factors they could be incorporated in recommendations of coping strategies to arm men against future anxiety about MPB.

5.6 Conclusion

Hair is an important component of overall body satisfaction so considering the prevalence, undesirability, and relative uncontrollability of MPB, attention to the negative concerns and effects related to it are both worthy and in need of careful attention. This study has addressed a type of anticipatory distress which has been previously overlooked by research on MPB and takes the first step towards clarifying the personal characteristics which predict future anxiety about MPB, while contributing to the understanding of anxiety in its different forms. This exploratory study has laid the foundation for future research by supplying indications for worthwhile directions to explore in the aim to understand, relieve, and prevent future anxiety about MPB. Future anxiety about MPB is a real and relevant concern for men and is predicted to become an increasingly important component of body dissatisfaction in men as the current cultural emphasis on appearance progresses.

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Appendix A

Information Sheet and Questionnaire

Information Sheet

You are invited to take part in this study of men's evaluations of their current physical appearance in terms of body image and hair, and men's attitudes to changes in physical appearance with aging. It also examines men's social confidence, self-consciousness, and emotion. This study is part of the research I am doing at Massey University for my MA degree.

My name is Katy Luxon and you can phone me on [redacted] or e-mail [redacted] with any questions about this study, or contact my supervisor Dr Richard Fletcher, (09) 443 9799 extension 9077 or e-mail R.B.Fletcher@massey.ac.nz

You have been randomly approached from the general population. If you decide to participate you will be asked to fill in a questionnaire of "tick the answer which most closely describes you" type answers. This will take approximately 22 minutes to complete. There are no harmful effects or discomfort involved in or resulting from participation. This study has been approved by the Massey University Human Ethics Committee. A name or any form of identification will NOT be required at any stage so confidentiality and anonymity is guaranteed.

The completed questionnaires will be kept securely so only myself and my supervisor will ever have access to the information. At the end of this study all your information will be destroyed. The results of the research will be submitted as a masterate thesis and may be used for future publication or presentation. As this is an anonymous survey you will not be able to be identified in research reports.

Participation is entirely voluntary and you have the right to decline to participate.

Should you agree to take part in this study:

- you have the right to ask any questions about the study at any time during participation
- you have the right to refuse to answer any question
- you have the right to pull out at any stage without having to provide a reason
- you have the right to receive a summary of the results when this study is completed (Please note that if you wish to receive this you will need to provide a contact postal or e-mail address on the back page of the questionnaire if you are interested in receiving this. If you do, this will only be so the results can be sent to you and your contact details will then be destroyed).

Completion of this questionnaire implies you understand these rights and agree to participate.

If you would like to further discuss any of the issues this study raises you may contact Jeff Saunders *M. Guid. Couns., Family Th. Cert, BA., BSc., MNZAC, Masterpractitioner NLP.* [redacted]
If you are a university student, counselling is also available at your student health centre.

RESEARCH QUESTIONNAIRE

1. Age .....

2. With which ethnic group do you most closely identify? *(Please tick...)*

☐ Asian

☐ New Zealander of European/Pakeha descent

☐ New Zealander of Maori descent

☐ Pacific Island Polynesian

☐ Other *(Please specify...)* .....

3. Current Marital Status *(Please tick...)*

☐ Married/ Permanently attached

☐ Single

4. What is the highest level of education you have completed? *(Please tick...)*

☐ Less than high school

☐ Completed high school

☐ Tertiary qualification (certificate, diploma)

☐ University degree

☐ University postgraduate degree

Instructions: *The following tables contain statements of commonly held opinions.*
Please put a tick in the box of the statement which most ***closely*** *describes you.*
There are no right or wrong answers, we are interested in your honest personal opinions.
First impressions are best. If you make a mistake, put a cross through your tick and put a new tick in the box of your new choice.
Please complete the questions in the order they are presented.

Please indicate how you ***generally*** *feel*

		Strongly Disagree	Disagree	Agree	Strongly Agree
5	I feel pleasant				
6	I tire quickly				
7	I feel like crying				
8	I wish I could be as happy as others seem to be				
9	I am losing out on things because I can't make up my mind soon enough				
10	I feel rested				
11	I am "calm, cool and collected"				
12	I feel that difficulties are piling up so that I cannot overcome them				
13	I worry too much over something that really doesn't matter				
14	I am happy				
15	I am inclined to take things hard				
16	I lack self-confidence				
17	I feel secure				
18	I try to avoid facing a crisis or difficulty				
19	I feel blue				

		Strongly Disagree	Disagree	Agree	Strongly Agree
20	I am content				
21	Some unimportant thought runs through my mind and bothers me				
22	I take disappointments so keenly that I can't put them out of my mind				
23	I am a steady person				
24	I get in a state of tension or turmoil as I think over my recent concerns and interests				

Note. Due to the conditions of use of the Multidimensional Body-Self Relations Questionnaire, the following two subscales cannot be reproduced here.
Source: Cash, T. F. (2000). MBSRQ Users' Manual (Third Revision). Retrieved March 25, 2002, from http://www.body-images.com/mbsrq.html

Questions 25-36 Appearance Orientation subscale of the Multidimensional Body-Self Relations Questionnaire

Questions 37-45 Body Areas Satisfaction Scale, a subscale of the Multidimensional Body-Self Relations Questionnaire

Please indicate the extent to which you agree or disagree with each statement

		Strongly Disagree	Disagree Some-what	Slightly Disagree	Slightly Agree	Agree Some-what	Strongly Agree
46	Whether or not I get to be a leader depends mostly on my ability						
47	To a great extent my life is controlled by accidental happenings						
48	I feel like what happens in my life is mostly determined by powerful people						
49	Whether or not I get into a car accident depends mostly on how good a driver I am						
50	When I make plans, I am almost certain to make them work						
51	Often there is no chance of protecting my personal interests from bad luck						
52	When I get what I want, it's usually because I'm lucky						
53	Even if I were a good leader, I would not be made a leader unless I play up to those in positions of power						
54	How many friends I have depends on how nice a person I am						
55	I have often found that what is going to happen will happen						
56	My life is chiefly controlled by powerful others						
57	Whether or not I get into a car accident is mostly a matter of luck						
58	People like myself have very little chance of protecting our personal interests when they conflict with those of powerful other people						
59	It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune						
60	Getting what I want means I have to please those people above me						
61	Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time						

		Strongly Disagree	Disagree Some-what	Slightly Disagree	Slightly Agree	Agree Some-what	Strongly Agree
62	If important friends were to decide they didn't like me, I probably wouldn't make many friends						
63	I can pretty much determine what will happen in my life						
64	I am usually able to protect my personal interests						
65	Whether or not I get into a car accident depends mostly on the other driver						
66	When I get what I want, it's usually because I worked hard for it						
67	In order to have my plans work, I make sure that they fit in with the desires of people who have power over me						
68	My life is determined by my own actions						
69	It's chiefly a matter of fate whether or not I have a few friends or many friends						

Please indicate how closely each statement describes you

		Not at all like me	A little like me	Somewhat like me	A lot like me
70	I'm always trying to figure myself out				
71	I'm concerned about my style of doing things				
72	It takes me time to get over my shyness in new situations				
73	I think about myself a lot				
74	I care a lot about how I present myself to others				
75	I often daydream about myself				
76	It's hard for me to work when someone is watching me				
77	I never take a hard look at myself				
78	I get embarrassed very easily				
79	I'm self-conscious about the way I look				
80	It's easy for me to talk to strangers				
81	I generally pay attention to my inner feelings				
82	I usually worry about making a good impression				
83	I'm constantly thinking about my reasons for doing things				
84	I feel nervous when I speak in front of a group				
85	Before I leave my house, I check how I look				
86	I sometimes step back (in my mind) in order to examine myself from a distance				
87	I'm concerned about what other people think of me				
88	I'm quick to notice changes in my mood				

		Not at all like me	A little like me	Somewhat like me	A lot like me
89	I'm usually aware of my appearance				
90	I know the way my mind works when I work through a problem				
91	Large groups make me nervous				

Please indicate how closely each statement describes you

		Not at all Characteristic of me	Not very	Slightly	Fairly	Very Much Characteristic of me
92	I am not likely to speak to people until they speak to me					
93	I would describe myself as self-confident					
94	I feel confident of my appearance					
95	I am a good mixer					
96	When in a group of people, I have trouble thinking of the right things to say					
97	When in a group of people, I usually do what the others want rather than make suggestions					
98	When I am in disagreement with other people, my opinion usually prevails					
99	I would describe myself as one who attempts to master situations					
100	Other people look up to me					
101	I enjoy social gatherings just to be with people					
102	I make a point of looking other people in the eye					
103	I cannot seem to get others to notice me					
104	I would rather not have very much responsibility for other people					
105	I feel comfortable being approached by someone in a position of authority					
106	I would describe myself as indecisive					
107	I have no doubts about my social competence					

Continued on next page...

Male Pattern Baldness *is the hair loss or hair thinning that men commonly experience with aging. It can begin at any time after puberty. Men lose their hair in different patterns and at different rates. This hair loss happens because the male hormone testosterone alters the hair roots. The tendency for baldness is inherited from either side of the family and can skip generations.*

108. Have you ever used any of the following to stop, prevent, or hide hair loss?
(Please tick "No" or "Yes"). If "Yes", how often or how many times?

	No	Yes	How often or how many times?
a) Shampoo or Conditioner for hair loss	☐	☐	.....
b) Regrowth formula and rub on gels	☐	☐	.....
c) Hair Loss Concealer	☐	☐	.....
d) Oral drugs	☐	☐	.....
e) Vitamins for hair	☐	☐	.....
f) Hair Transplant	☐	☐	.....
g) Been to a doctor, dermatologist, or hair loss clinic about your hair	☐	☐	.....

h) Other *(Please describe...)* .....

.....

Please indicate the extent to which you agree or disagree with each statement

		Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
109	I do not think that I will be alone or rejected because of hair loss					
110	It is extremely unlikely that my hair will fall out, recede, or thin, in the future					
111	I will feel self-conscious and less confident because of my hair loss					
112	I feel relaxed and comfortable when I think about my possible future hair loss					
113	I feel anxious when I think about what losing my hair will be like					
114	I expect my hair loss will not be socially noticeable at all					
115	I worry about how others will react when they notice my hair loss					
116	Thinking about hair loss makes me feel tense or jittery or nervous					
117	I do not expect my future hair loss to impair my job opportunities					
118	I expect I will feel very dissatisfied with my appearance because of my hair loss					
119	I am completely confident that in the future I will be able to cope with my hair loss					

		Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
120	I am afraid that others will have a negative opinion of me because of my hair loss					
121	I am worried that my life will change for the worse with hair loss					
122	I am afraid that I won't be appreciated in my profession because of hair loss					
123	I worry about male mates noticing my hair loss					
124	I expect to be no less attractive and appealing to my partner/a potential partner, following my hair loss					
125	I am concerned what other people will think of me when they notice my hair loss					
126	I can think of plenty of things I can do to enhance my appearance once I have lost hair					
127	Thinking about my hair loss in the future makes me feel worried and upset					
128	I worry about looking older than I am because of hair loss					
129	I am not at all concerned about female friends noticing my hair loss					
130	I feel completely calm and at ease when I think of my future hair loss					
131	My hair loss will make me less confident in sexual encounters					
132	The closer I am to losing my hair the more comfortable I feel about it					
133	I feel helpless because I cannot control hair loss					
134	I worry about difficulties I think I will encounter because of hair loss					
135	I worry about being teased about my hair loss					
136	I think hair loss is highly undesirable					
137	I almost never think about losing my hair when I'm older					

138. If you have not experienced significant hair loss yet, at what age do you expect your hair loss to begin? .....

139. How much hair loss do you expect in the next 10 years? *(Please tick...)*

No Loss	Slight Loss	Considerable Loss or thinning	Significant Loss	Extensive Loss
☐	☐	☐	☐	☐

140. Which diagram most closely represents your hair pattern right now? *(Please tick the closest type)*

Type I

☐ Type I

Type II

☐ Type II

Type III

☐ Type III

Type III Vertex

☐ Type III Vertex

Type IV

☐ Type IV

Type V

☐ Type V

Type VI

☐ Type VI

Type VII

☐ Type VII

Thank you very much for taking the time to complete this questionnaire.

Appendix B

Plots for Multiple Regression Assumption Checking

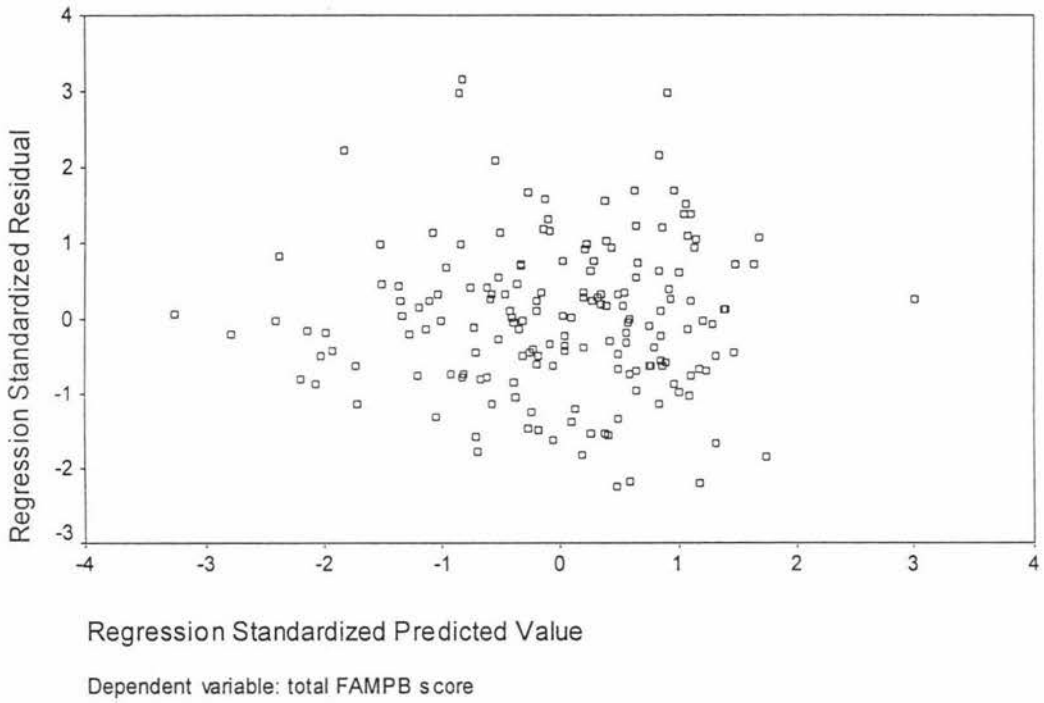

Figure B1. Scatterplot of residual dispersion with no clear or consistent pattern demonstrating normality, linearity, and homoscedasticity.

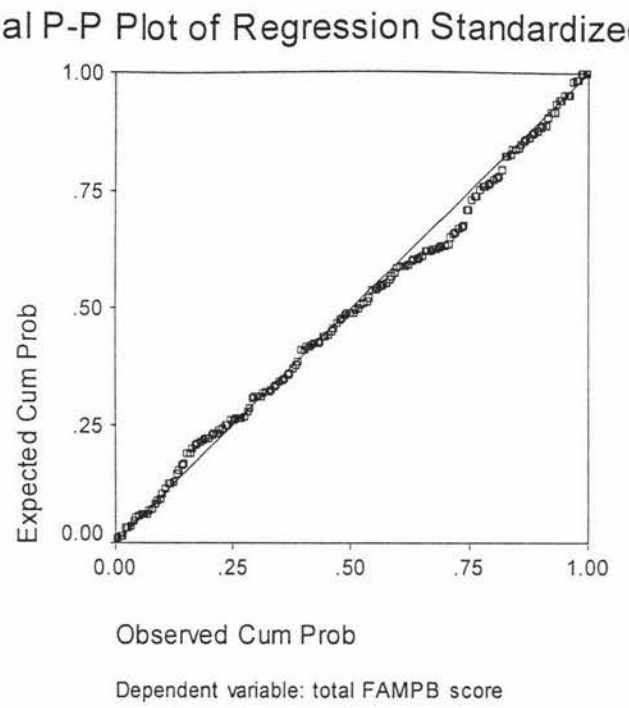
Normal P-P Plot of Regression Standardized Residual
Expected Cum Prob
Observed Cum Prob
1.00
.75
.50
.25
0.00
0.00
.25
.50
.75
1.00
Dependent variable: total FAMPB score

Figure B2.