Predictors of Future Anxiety About Male Pattern Baldness in New Zealand Males

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This exploratory study used self-report measures from 173 men aged between 18 and 35 years, who had not yet experienced significant hair loss, to examine potential predictors of future anxiety in young men about Male Pattern Baldness (MPB). Predictor variables were measured using the State-Trait Anxiety Inventory – Trait scale (STAI-T), Appearance Orientation (AO) scale, and Body Areas Satisfaction Scale (BASS), Locus of Control scale (LOC), Self-Consciousness Scale-Revised (SCS-R), and the Texas Social Behavior Inventory – Short Form A (TSBI-A). Confirmatory Factor Analyses (CFA) of extant scales were conducted. A scale to measure the criterion variable of Future Anxiety Specific to MPB (FAMPB) was developed based on theory and previous research about anxiety, male body image, and the psychological effects of MPB. Using stepwise regression analysis, predictor variables of trait anxiety, appearance orientation, private self-consciousness, powerful others locus of control, and variables based on Zaleski's (1996) proposed determinants of future anxiety which in combination accounted for 45.3% of the variance in future anxiety about MPB in this sample.

Male pattern baldness (MPB) is a highly prevalent condition (Norwood, 1975), which can occur at any time after puberty (Bertolino, 1993; Hogan & Chamberlain, 2000; Sinclair, 1998). Medically know as androgenetic alopecia, MPB affects two-thirds of all men by the age of 60. The condition occurs in a characteristic pattern on the scalp, with hair loss usually beginning at the temples and at the top of the head, resulting in a receding hairline and a bald spot. It progresses in incidence and degree with age, although individual men lose their hair in different patterns and sequences, and at different rates (Norwood, 1975). Although prevalence of MPB in New Zealand men has not been reported, MPB is more common and severe in Caucasians than in African Americans or Asians (Bertolino, 1993; Paik, Yoon, Sim, Kim, & Kim, 2001; Setty, 1970). In a sample of 1000 Caucasian men, Norwood (1975) observed and classified the recognizable patterns of hair loss and hair line recession in MPB according to 8 types which approximately increase in degree of hair loss from Type I to Type VIII. Amongst the 18- to 29-year-old men, 60% were Type I, 28% were Type II, and 6% were Type III (Norwood, 1975). More than half of Caucasian men will experience noticeable hair loss by the time they are 50-years-old (Norwood, 1975). Three determining components of the time of onset, rate of loss, and extent of MPB, are age, genetics, and androgens (Hamilton, 1942). MPB is therefore unpredictable, and without specific maintained medication to act on the process triggered by androgens, MPB is progressive and permanent (Sinclair, 1998). Research on the experience or anticipation of MPB in New Zealand men has not been conducted.

Research reveals an uninviting picture of MPB in terms of others' impressions and personal experiences of baldness (Budd, Himmelberger, Rhodes, Cash, & Girman, 2000; Butler, Pryor, & Grieder, 1998; Cash, 1990, 1992; Cash, Price, & Savin, 1993; de Koning, Passchier, & Dekker, 1990; DeMuro-Mercon, Rhodes, Girman, & Vatten, 2000; Muscarella & Cunningham, 1996; Roll & Franzoi, Anderson, & Frommelt, 1990; Venneman, 1997; Wells, Willmoth, & Russell, 1995; Verinis, 1971). In immediate visual impressions, men with hair loss have been evaluated as being weak, inactive, unkind, bad, ugly, and hard, and in comparison to non-balding men have been rated as less potent and less dynamic, and lower in physical attractiveness, masculinity, dominance and assertiveness, confidence, happiness, and success (Butler et al., 1998; Cash, 1990; Roll & Vermis, 1971; Muscarella & Cunningham, 1996). Thus there is a very negative stereotypical image associated with MPB.

The disadvantages of MPB are not confined to impressions of physical attractiveness and personality, with proportions between 45% and 79% of men experiencing frequent peer teasing about their hair loss (Cash, 1992; Cash et al., 1993). MPB has also been associated with negative self-perceptions (DeMuro-Mercon et al., 2000; Franzoi et al., 1990). Compared to non-balding men, men with hair loss have been found to have lower satisfaction with the overall appearance of their hair (DeMuro-Mercon et al., 2000), and to judge themselves as less

attractive (Franzoi et al., 1990).

Further, MPB has been associated with impaired mental health. Using self-report measures, hair loss has been associated with depression, low self-esteem, worry, helplessness, self-consciousness, and social stress (Budd et al., 2000; Wells et al., 1995), and men with hair loss have scored higher in negative affect, anxiety, and depression than have the general population (Venneman, 1997). General practitioners reported that 26% of the men they were seeing for hair loss problems had low self-esteem, and 9% had depression (de Koning et al., 1990).

Cash (1992) noted many psychosocial characteristics associated with the distress balding men attributed to their hair loss. These were higher degrees of appearance orientation, public self-consciousness, chance locus of control, powerful others locus of control, lower degrees of hair satisfaction, appearance evaluation, body areas satisfaction, sexual self-confidence, and social self-esteem (Cash, 1992). Social anxiety and internal locus of control were not significantly related to distress about balding (Cash, 1992). Franzoi and colleagues (1990) found that men high in public self-consciousness were more likely than men low on this trait to believe that men with thinning hair would be judged as less attractive and less appealing romantic partners. Also, the men high in public self-consciousness displayed greater concern with their own MPB, and greater willingness to try hair loss treatments. Amongst a small subsample of 39 men with no noticeable hair loss, those high in public self-consciousness were more concerned about future loss (Franzoi et al., 1990).

The overwhelming majority of research shows MPB to be a negative experience in many domains, and combined with the high prevalence, unpredictability, and progressive nature of MPB, there is good reason to explore the future anxiety men may experience in anticipation of MPB. However, no research to date has examined subjective attitudes towards MPB before it occurs.

Although most anxiety is future oriented, Zaleski defined and differentiated future anxiety per se as, "…a state of apprehension, uncertainty, fear, worry and concern of unfavourable changes in a more remote personal future" (1996, p.165). According to Zaleski, the antecedents to future anxiety and the nature of future anxiety are strongly cognitive so simply thinking about a possible deleterious future event is sufficient to produce this anxiety reaction in the present time. A study by Susulowska (published in another language; cited in Zaleski, 1996), showed that future anxiety was most common between the ages of 20 to 29 years, which coincides with the ages that the onset of MPB is likely to be a relevant concern.

According to Zaleski, the major determinant of worry and its duration is the threat value, and this can be evaluated on a continuum of degrees of subjective importance. Eysenck (1992) and Zaleski proposed four determinants of 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. The present study will evaluate the capacity of these characteristics for determining distress related to MPB. Following Cash (1992), who identified psychosocial characteristics associated with distress following MPB, this study will examine psychosocial characteristics associated with distress in men prior to experiencing significant hair loss.

Aims

The aims of the study were a) to develop a scale for measuring future anxiety about MPB, b) to investigate whether psychosocial characteristics which have been related to MPB after it occurs, are also predictive of future anxiety about MPB onset and c) to investigate whether Zaleski's proposed determinants of future anxiety in general provide additional power in predicting future anxiety specific to MPB.

Method

Participants

Participants in this study were 173 males aged between 18 years and 35 years (M = 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%), 0.6% were separated or divorced, and 9.9% were married or in a relationship. In terms of the highest level of education completed, 4.6% had completed a university postgraduate degree, 16.8% had completed a university degree, 12.7% had a tertiary qualification such as a certificate or diploma, 64.2% had completed high school, and 1.7% had not completed high school. Passers-by on the campuses of Lincoln University and the University of Canterbury in Christchurch were randomly approached by a researcher and invited to take away a self-report questionnaire to complete and return anonymously by freepost.

Because this study examined anticipatory attitudes prior to noticeable hair loss, 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.

Measures

The data collected included demographic details, identification of current hair pattern out of eight illustrations from the *Norwood Male Pattern Baldness Classification System* (Norwood, 1975), and questions about the current use of personal strategies to prevent or cope with hair loss, which were derived from the following inventories.

Trait anxiety: Trait anxiety, an individual's relatively stable disposition towards anxiety-proneness, was measured using the *State-Trait Anxiety*

Inventory – Trait scale (STAI-T; Spielberger, Gorsuch, & Lushene, 1970). Theoretically the authors predicted that those high in trait anxiety would be anxious in response to a wider selection of situations. This 20-item scale has a 4-point response format from "strongly disagree" to "strongly agree". In other studies the STAI-T has demonstrated high test-retest reliabilities and construct validity for samples of males (Dreger, 1978; Katkin, 1978), and in the present study produced an alpha coefficient of 0.89.

Appearance Orientation and Body Areas Satisfaction: Two subscales of the Multidimensional Body-Self Relations Questionnaire (MB-SRQ; Cash, 2000) were used. The 12-item *Appearance Orientation scale* (AO; Cash, 2000), measures the degree of investment people have in their own physical appearance and how important their looks are to them. It has a 5-point response format from "definitely disagree" to "definitely agree". This scale had an alpha coefficient of 0.85 in this study. The 9-item *Body Areas Satisfaction Scale* (BASS; Cash, 2000), measures how content people are with their body size and appearance. The BASS has a 5-point response format from "very dissatisfied" to "very satisfied". In this study the BASS had an alpha coefficient of 0.81. The MB-SRQ manual reports normative scores, sound reliabilities, and sufficient internal consistency and stability for both scales (Cash, 2000).

Locus of Control: The *Locus of Control scale* (LOC; Levenson, 1981), has 8-item subscales measuring three independent components of the locus of control construct. 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. The LOC has a 6-point response format from "strongly disagree" to "strongly agree". Scores for each subscale can range from 0 to 48 with high scores indicating a high expectation of control from that source. One type (or combination of types) of locus of control is not universally more desirable or more appropriate than the alternative sources of control (Levenson, 1981). High internal consistency, and good Kuder-Richardson reliabilities, Spearman-Brown split-half reliabilities, and test-retest reliabilities have been reported for each subscale (Levenson, 1981). In this study the alpha coefficients for the LOC subscales were 0.49 for LOC-I, 0.59 for LOC-P, and 0.63 for LOC-C.

Self-Consciousness: The *Self-Consciousness Scale-Revised* (SCS-R; Scheier & Carver, 1985), has three subscales with 22 items in total. It uses a 4-point response format from "not at all like me" to "a lot like me". The private self-consciousness subscale (SCSR-PR) measures a person's attunement to internal personal characteristics such as beliefs, attitudes, and feelings. The public self-consciousness subscale (SCSR-PU) measures a focus on the characteristics of the self which are observable to others, and the third subscale measures social anxiety (SCSR-SA). Scheier and Carver (1985) produced subscale norms, demonstrated internal consistency and four week test-retest reliability for the subscales. The alpha coefficients in the present study were 0.69 for SCSR-PR, 0.79 for SCSR-PU, and 0.75 for SCSR-SA.

Social confidence: The *Texas Social Behavior Inventory – Short Form A* (TSBI-A; Helmreich & Stapp, 1974) has 16 items about confidence in social situations such as in groups of people, and interacting with strangers, with higher scores (the possible range is from 0 to 64) indicating greater social self-esteem. It has a 5-point response format from "not at all characteristic of me" to "very much characteristic of me". Psychometric properties specific to the TSBI-A are yet to be reported, although scores on it are highly correlated (r = 0.97) with the original Texas Social Behavior Inventory scores which has demonstrated internal consistency, construct validity, and produced high Cronbach's reliability (Helmreich & Stapp, 1974; McIntire & Levine, 1984). In the present study the alpha coefficient for this scale was 0.78.

Zaleski's Predictors of Future Anxiety: To examine the usefulness of the four proposed predictors in predicting future anxiety specific to MPB the following 4 items were included. Individual questions using a 5-point response format ("strongly disagree" to "strongly agree"), asked participants about expected likelihood of future personal hair loss, perceived undesirability of hair loss, and confidence in ability to cope with hair loss. To measure imminence of expected hair loss participants were asked at what age they expected their hair loss to begin (from which their current age was subtracted).

Future Anxiety about MPB: To measure the criterion variable the *Future Anxiety about MPB Scale* (FAMPB) was developed using 26 items which are rated with a 5-point response format from "strongly disagree" to "strongly agree". Possible scores range from 26 to 130 with higher scores measuring greater future anxiety about MPB. The questions were developed based on existing literature 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). The items were specific to MPB but based on factors indicated in the literature as being related to future anxiety or physical appearance concerns. The alpha coefficient for this scale was 0.93.

Confirmatory Factor Analyses

For each extant measurement scale a maximum likelihood CFA was undertaken with each model specified according to their hypothesised factor structure using Amos 4.0 (Arbuckle, 1999). Thus for the Texas Social Behaviour inventory the sixteen items were all specified to load onto one latent factor. The 20-items of the STAI-I were specified to load onto one latent factor. The 21 items from the MB-SRQ were specified to load on to two latent factors; Appearance Orientation (12 items) and Body Areas Satisfaction (9 items). Both

factors were allowed to correlate with one another. For the Locus of Control Scale the 24 items identified three latent factors; internal locus of control (8 items), chance (8 items), and powerful others (8 items). All latent factors were allowed to correlate with one another. Finally, the 22 items from the SCSR were used to identify three latent factors: Private self-consciousness (9 items), public self-consciousness (7 items), and social anxiety (6 items). Again latent factor were allowed to correlate with one another.

CFA Goodness-of –fit indices

Absolute (χ2) and incremental (Comparative fit index (CFI, Bentler, 1992), the root mean square error of approximation (RMSEA, Steiger & Lind, 1980) and goodness-of-fit indexes were used to assess the degree of model data fit. For the CFI, values range from zero to 1.00, with values of .90 (Bentler, 1992) and .95 (Hu & Bentler, 1999) suggesting good fit. For the RMSEA Browne and Cudeck (1993) suggested values <.05 indicate good fit and values >.05 and <.08 represent reasonable fit, whereas MaCallum, Browne, and Sugawara (1996) noted that values >.08 and <.10 were evidence of mediocre fit.

Stepwise Regression Analyses

The data from this sample fit the multiple regression assumptions of normality, linearity, and homoscedasticity. The threat of multicollinearity was not considered to jeopardize the suitability and sufficiency of the data for multiple regression analysis.

In stepwise regression analysis each predictor variable identified in a subset of the predictor variables significantly improved the overall predictive power of the variables it was combined with. As opposed to regression methods in which the researcher defines the order of individual or blocks of variable entry into the equation, in stepwise regression predictor variables are systematically entered in an order defined entirely by statistical criteria. This begins with the variable which has the highest bivariate correlation with the criterion variable and continues until error is not further proportionately reduced, and the predictive power is not enhanced with the inclusion of any other potential variable (Aron & Aron, 1994). In using this method the possibility of overfitting of data and the dependence on chance in a single sample highlights the need for conservative consideration of the generalizability of the results (Tabachnick & Fidell, 2001). Because of the exploratory nature of this research stepwise regression was deemed the most appropriate data analysis method.

The criterion variable for the stepwise regression analysis was the total FAMPB score. Research has identified psychosocial variables related to distress resulting from MPB and Zaleski (1996) has suggested predictors of a future oriented anxiety. These two groups of predictors relate to the two components of this study, namely MPB and future anxiety. The predictor variables entered into the stepwise regression analysis were total scores of the STAI-T, AO, BASS, LOC-C, LOC-P, LOC-I, SCSR-PR, SCSR-PU, SCSR-SA, TSBI-A, and FAMPB scales.

Results

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. While 31.8% of participants agreed or strongly agreed that it was extremely unlikely that their hair would fall out, recede, or thin in the future, 44.5% of participants disagreed or strongly disagreed with this statement. In the next 10 years approximately half the participants (51.70%) expected no personal hair loss, 30.80% expected "slight" hair loss, while the rest of the participants expected "considerable" to "extensive" hair loss. The average age at which participants expected their hair loss to begin was 41.07 years (*SD* = 13.19, *median* = 40).

The Pearson *r* correlation coefficient showed a significant but small relationship between current age and total FAMPB score ($r = -0.16$, $p < 0.05$, 2 tailed). The age at which participants expected hair loss to begin ($r = -0.12$, *ns*), and the amount of hair participants expected to lose in the next ten years ($r = 0.09$, *ns*), were not significantly related to the total FAMPB score.

Exploratory Factor Analysis of the FAMPB scale

The exploratory factor analysis of the FAMPB scales indicated that single factor was identifiable and interpretable and accounted for 39.34% of the variance, with factor loadings ranging from 0.11 to 0.85. Although six items showed low loadings (<.40), it was decided that in order to achieve accurate theory representation, and due to the quality of the items, these items would be retained for CFA analysis.

CFA Results

CFA results are displayed in Table 1. For all models the χ2 (p<.05) was statistically significant which indicated lack of model fit. However, Byrne (2001) noted that regardless of how well postulated a model is, it will always be falsely rejected given sufficient sample size, thus, typically, more emphasis is given to the other fit indices, especially the RMSEA. In general the CFA results suggest that the hypothesized factor structures suggested by the authors of the measures were moderately evident. As the RMSEA is among the best indicators of model fit then the results suggest that for the STAI-I the model fit is good. For the MBSRQ-Appearance & Body areas satisfaction subscales, the Locus of Control Scale, and the Self-Consciousness Scale-Revised the model fit was reasonable. For the Texas Social Behavioural Inventory the RMSEA was 0.11 and did not represent good fit between the model and the data. Thus, for the Texas Social Behaviour Inventory results should be interpreted with caution.

The correlation between the MBSRQ Appearance Orientation and Body Areas Satisfaction subscale was $r = .01$ (p<.89). For the Locus of Control Scale the correlations were;

Table 1: Fit indices for the Confirmatory Factor Analyses of the Predictor Variable Measures

	$\chi 2$	df	RMSEA	CFI
Texas Social Behaviour Inventory	318*	104	.11	.72
State Trait Anxiety Inventory - Trait Scale	248*	170	.05	.92
MBSRQ - Appearance Orientation & Body Areas Satisfaction Scale	429*	188	.09	.79
Locus of Control Scale	426*	252	.06	.73
Self-Consciousness Scale - Revised	465*	209	.09	.79

Note: * = p,.05. MBSRQ = Multidimensional Body Self Relations Questionnaire

internal Locus of Control and Chance r = -.34 (p<.05) Locus of Control and Powerful others r = -.49 (p<.05), and Chance and Powerful Others r = .70 (p<0.05). For the SCSR subscales the correlations between the factors were: Private Self-Consciousness and Public Self-Consciousness r = .64 (p<.24), Private Self-Consciousness and Social Anxiety r = .28 (p<.26), and Public Self-Consciousness and Social Anxiety r = .28 (p<.01).

Stepwise Regression Results

The bivariate correlations between the total FAMPB scores and scores on each of the four proposed determinants of future anxiety in relation to MPB showed that perceived undesirability of MPB showed a significant medium relationship (r = 0.422, p < 0.01), and lack of confidence in ability to cope with MPB showed a significant large relationship (r = -0.492, p < 0.01), with total FAMPB. Perceived likelihood of MPB and expected imminence of MPB were not significantly related to total FAMPB. Only the two variables which were significantly related to total FAMPB were included in the stepwise regression analysis. In addition, the perceived undesirability of MPB, and lack of confidence in ability to cope with MPB (Zaleski's two predictors which were significantly related to total FAMPB), were included with the ten predictor variables culminating from a combination of trait anxiety, powerful others locus of control, appearance orientation, and private self-consciousness.. Appearance orientation and private self-consciousness did not contribute significantly to the stepwise regression analysis. The combination of lack of confidence in ability to cope with MPB, perceived undesirability of MPB, trait anxiety, and powerful others locus of control accounted for 45.3% of the variance in the total FAMPB score. This model of four predictors was significantly related to the total FAMPB score, F(4,168) = 36.594, p < 0.05.

Discussion

For the purposes of this study a new scale, the FAMPB was developed and preliminary validity and reliability evidence suggest it has good psychometric properties. Predictors of future anxiety about MPB were examined and the applicability of Zaleski's (1996) predictors of future anxiety specific to MPB was evaluated.

The FAMPB measured the criterion variable it was designed to measure with high reliability and a stable single factor structure. Application of this scale in future research is recommended, as well as the development of a multidimensional measure to sift out areas of most concern which may include perceived threat to romantic relationships, career, or personal wellbeing, worries about peer teasing, or ability to control and cope with MPB.

Regression analysis showed that men in the sample who had a greater personality disposition towards being anxious, who believed their life was 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. Appearance orientation and powerful others locus of control were individually significantly related to distress attributed to MPB by balding men (Cash, 1992), suggesting that appearance orientation and powerful others locus of control may be linked to anxiety in anticipation as well as in response to MPB. The inclusion of trait anxiety in the combination of predictors is consistent with models of trait anxiety (Spielberger et al., 1970; Zaleski, 1996), which suggest that those who are more anxious expect and perceive threat in response to a wide range of situations due to their greater accessibility to anxiety-provoking cognitive schemas. Whereas 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 amongst the predictors of future anxiety about MPB, while public self-consciousness was excluded. Perhaps this is because concerns prior to substantial hair loss are largely internal so they are noticed by those more sensitive to fluctuations in their personal feelings and attitudes, whereas once substantial 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. In addition, lack of confidence in ability to cope with MPB, and undesirability of MPB were individually significantly related to future anxiety about MPB, emerged as predictors of future anxiety about MPB, along with trait anxiety and powerful others locus of control. Although together, the variables adopted as predictors accounted for over half the variance associated with future anxiety, there are clearly outstanding factors which have yet to be considered.

The applicability of Zaleski and Eysenck's four proposed determinants of general future anxiety, (perceived likelihood of occurrence, imminence, undesirability, and ability to cope), specific to MPB were considered. Rather than temporal characteristics

such as the likelihood or imminence of the aversive event being distressing, the expected experiential quality of the event which rests in subjective perceptions, appears to be more closely related to anticipatory distress. Once the onset of substantial 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 type of any distress related to MPB would be state anxiety rather than future anxiety. Likelihood and imminence might act as prerequisites for future anxiety about MPB, as a measure of personal relevance of the threat.

It is possible that the subjective perceptions regarding the degree of future anxiety currently experienced by participants were produced by unrealistic expectations due to prediction errors. Longitudinal research could address the role these cognitions have in producing future anxiety, as well as examining whether men who experience greater future anxiety in anticipation of MPB are more likely to experience and to attribute negative experiences to MPB once it occurs. The relationship between future anxiety about MPB, and other visual signs of aging, has yet to be examined.

This study has drawn together two components of previous research, MPB and future anxiety, each of which have received limited research attention to date. As well as providing further clarification about the nature and experience of future anxiety, and the anticipation of MPB in a sample of New Zealand men, the development of the FAMPB scale has laid the foundation for further research on future anxiety specific to MPB to proceed. Hair is an important component of overall body and self satisfaction so attention to the negative concerns about MPB are both worthy and in need of careful attention. Understanding the nature of future anxiety about MPB will be the first step towards developing methods to prevent and relieve this type of anxiety.

References

Arbuckle, J. L. (1999) Amos 4.0 [Computer software]. Chicago: Smallwaters.

Aron, A., & Aron, E. N. (1994). *Statistics for psychology*. London: Prentice Hall.

Bentler, P. M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin, 112*, 400-404.

Bentler, P. M., & Bonett, D. G. (1987). This week's citation classic. Current Contents, *Social & Behavioral Sciences, 19*, 16.

Bertolino, A. P. (1993). Clinical hair loss: diagnosis and treatment. *Journal of Dermatology, 20,* 604-610.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.

Budd, D., Himmelberger, D., Rhodes, T., Cash, T. F., & Girman, C. J. (2000). The effects of hair loss in European men: A survey in four countries. *European Journal of Dermatology, 10*(2), 122-127.

Butler, J., Pryor, B., & Grieder, M. (1998). Impression formation as a function of male baldness. *Perceptual and Motor Skills, 86*, 347-350.

Byrne, B. M. (2001). Structural equation modeling with AMOS: Basic concepts, applications, and programming. Mahwah, NJ, Lawrence Erlbaum Associates, Publishers.

Cash, T. F. (1990). Losing hair, losing points? The effects of male pattern baldness on social impression formation. *Journal of Applied Social Psychology, 20*, 154-167.

Cash, T. F. (1992). The psychological effects of androgenetic alopecia in men. *Journal of American Academy of Dermatology, 26*, 926-931.

Cash, T.F. (2000, January). *MBSRQ users' manual* (3rd revision). Retrieved May 1, 2002, from http://www.body-images.com/mbsrq.html

Cash, T. F., Price, V. H., & Savin, R. C. (1993). Psychological effects of androgenetic alopecia on women: Comparisons with balding men and with female controls. *Journal of American Academy of Dermatology, 29*, 568-575.

De Koning, E. B., Passchier, J., & Dekker, F. W. (1990). Psychological problems with hair loss in general practice and the treatment policies of general practitioners. *Psychological Reports, 67(3)*, 775-778.

DeMuro-Mercon, C., Rhodes, T., Girman, C. J., & Vatten, L. (2000). Male-pattern hair loss in Norwegian men: A community-based study. *Dermatology, 200*, 219-222.

Dreger, R. M. (1978). In O. K. Buros (Ed.), *The eighth mental measurements yearbook*, (pp.1094-1095). Highland Park, NJ: Gryphon Press.

Eysenck, M. (1992). *Anxiety: the cognitive perspective*. Hillsdale, NJ: Erlbaum.

Franzoi, S. L., & Anderson, J., & Frommelt, S. (1990). Individual differences in men's perceptions of and reactions to thinning hair. *Journal of Social Psychology, 130*(2), 209-218.

Hamilton, J. B. (1942). Male hormone stimulation is prerequisite and an incitant in common baldness. *American Journal of Anatomy, 71*, 451-480.

Helmreich, R., & Stapp, J. (1974). Short forms of the Texas Social Behavior Inventory (TSBI), an objective measure of self-esteem. *Bulletin of the Psychonomic Society, 4*(5A), 473-475.

Hogan, D. J., & Chamberlain, M. (2000) Male pattern baldness. *Southern Medical Journal, 93*(7), 657-662.

Hu, L., & Bentler, P. M. (1999). Hierarchical confirmatory factor analysis of the revised Personal Style Inventory: Evidence for the multidimensionality problem for perfectionism. *Educational and Psychology Measurement, 61*, 421-432.

Katkin, E. S. (1978). In O. K. Buros (Ed.), *The eighth mental measurements yearbook* (pp. 1095-1096). Highland Park, NJ: Gryphon Press.

Levenson, H. (1981). Differentiating among internality, powerful others, and chance. In H. M. Lefcourt (Ed.), *Research with the Locus of Control construct* (Vol. 1.) (pp. 15-63). New York: Academic Press.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*, 130-149.

McIntire, S. A., & Levine, E. L. (1984). An empirical investigation of self-esteem as a composite construct. *Journal of Vocational Behavior, 25*(3), 290-303.

Muscarella, F., & Cunningham, M. R. (1996). The evolutionary significance and social perception of male pattern baldness and facial hair. *Ethology & Sociobiology, 17*, 99-117.

The Norwood male pattern baldness classification system. (n.d.). Retrieved April 18, 2002, from http://www.keratin.com/ac/baldnesspatterns/baldnessclassification/002norwoodbaldnessclassification.shtml

Norwood, O. T. (1975). Male pattern baldness: Classification and incidence. *Southern Medical Journal, 68*(11), 1359-1365.

Paik, J-H., Yoon, J-B., Sim, W-Y., Kim, B-S., & Kim, N-I. (2001). The prevalence and types of androgenetic alopecia in Korean men and women. *British Journal of Dermatology, 145*, 95-99.

Roll, S., & Verinis, J. S. (1971). Stereotypes of scalp and facial hair as measured by the semantic differential. *Psychological Reports, 28*(3), 975-980.

Scheier, M. F., & Carver, C. S. (1985). The Self-Consciousness Scale: A revised version for use with general populations. *Journal of Applied Social Psychology, 15*(8), 687-699.

Setty, L. R. (1970). Hair patterns of the scalp of white and negro males. American *Journal of Physical Anthropology, 33*, 49-56.

Sinclair, R. (1998). Male pattern androgenetic alopecia. *British Medical Journal, 317*, 865-869.

Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Steiger, J. H., & Lind, J. M. (1980, June). *Statistically based tests for the number of common factors*. Paper presented at the annual meeting of the Psychometric Society, Iowa City, IA.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston: Allyn and Bacon.

Venneman, S. S. (1997). Discrimination and profile of alopecia areata and alopecia androgenetica patients. *Dissertation Abstracts International, 57* (7-B), 4756. Retrieved February 25, 2002, from the PsycINFO database.

Wells, P. A., Willmoth, T., & Russell, R. J. H. (1995). Does fortune favour the bald? Psychological correlates of hair loss in males. *British Journal of Psychology, 86*, 337-344.

Zaleski, Z. (1996). Future anxiety: Concept, measurement, and preliminary research. *Personality and Individual Differences, 21*(2), 165-174.

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