Brief Report

Perfectionism and Baldness Distress in Men

The Mediating Effect of Aging Anxiety

Dirk Kranz[1], Josip Razum[2], and Glen S. Jankowski[3]

[1]Department of Psychology, Trier University, Germany
[2]Ivo Pilar Institute of Social Sciences, Zagreb, Croatia
[3]Department of Psychology, Leeds Beckett University, United Kingdom

Abstract: *Introduction:* Against the backdrop of increasing body image concerns among men, the present study examined two factors that might underlie men's baldness distress: rigid perfectionism and anxiety about physical aging. *Methods:* An international sample of 355 men with varying degrees of baldness and an age range of 19 to 64 years were surveyed. *Results:* As hypothesized, participants scoring high in rigid perfectionism showed higher levels of baldness distress. This association was partially mediated by anxiety about physical aging. The mediation was not further moderated by participants' age, degree and duration of baldness, cultural context, or racial identity, which underlines the generalizability of results. *Discussion and Conclusion:* The discussion centers around the partial rather than complete mediation by aging anxiety and implications of the findings for supporting balding men in the public health domain.

Keywords: male pattern baldness, androgenetic alopecia, baldness distress, body image, perfectionism, aging anxiety

Male pattern baldness (MPB) results from a genetically predetermined sensitivity of scalp hair follicles to androgens, leading to the miniaturization of the follicles (Olsen et al., 2005; Trüeb & Lee, 2014). MPB can begin any time after puberty when androgens have reached a critical level. As a rule of thumb, 30% of men go bald in their 30s, 50% in their 50s, and 70% in their 70s (Budd et al., 2000; Rhodes et al., 1998). MPB is not a disease in the strict sense, as it does not interfere with physical health (National Health Service, 2021). Nevertheless, many balding men, especially younger men, struggle with their appearance. Psychological distress about MPB includes worries about looking old and unattractive (Aukerman & Jafferany, 2022; Razum & Vukasović Hlupić, 2022).

Much prior, often pharmaceutically sponsored, research investigated the detrimental effects of MPB – its onset, duration, degree, etc. – on subjective well-being and the distress-reducing effects of MPB treatment (for an overview, see Frith & Jankowski, 2023). An entire industry thrives on selling anti-MPB drugs and thus has a strong interest in proving not only the dermatological but also the psychological effectiveness of MPB treatment (Jankowski & Frith, 2022). There has been limited research, however, on psychological factors underlying men's baldness distress. Exceptions are studies that identified self-esteem problems (Wells et al., 1995), public self-consciousness (Franzoi et al., 1990), and social anxiety (Russo et al., 2019) as relevant factors. The present study further addresses this issue by focusing on perfectionism and aging anxiety.

Perfectionism is a personality trait characterized by setting extremely high standards, accompanied by excessive criticism of the self or others when (possibly) failing to meet these standards (Flett & Hewitt, 2002). The trait develops early in life, especially through social learning and conditioning in the family and school environments (Damian et al., 2017, 2022). Rigid perfectionism is strongly related to psychological maladjustment, including preoccupation and dissatisfaction with one's body (Cunningham et al., 2018; Stoeber, 2018). Because MPB is ubiquitously viewed as a bodily imperfection (Henss, 2002; Kranz et al., 2019), perfectionists should show increased distress when going bald.

Overall, the aging body is at odds with conventional ideals of attractiveness (Clarke & Korotchenko, 2011; Öberg & Tornstam, 2001). It is thus not surprising that prior research showed that (female) perfectionists report more anxiety about physical aging (Evangelista et al., 2022;

Midlarsky & Nitzburg, 2008) and, consequently, more use of anti-aging products (Naami & Salehi, 2016; Swami & Mammadova, 2012). In line with this, balding men generally worried about aging should also be more distressed about MPB, which is an evident sign of aging that is hard to sustainably disguise.

The present study tests the following hypotheses:

Hypothesis 1 (H1): Men's rigid perfectionism is positively correlated to their distress about MPB.

Hypothesis 2 (H2): This correlation is mediated by anxiety about physical aging.

From a conceptual standpoint (Flett & Hewitt, 2002; Stoeber, 2018), perfectionism is suggested to dispose individuals to anxiety about (bodily) imperfections, which, in turn, should evoke distress when facing respective (bodily) self-discrepancies, such as hair loss versus full hair. Various authors have verified the hypothesized link from perfectionism through anxiety to distress in numerous domains of mental health research (Akram et al., 2017; Pirbaglou et al., 2013; Zhou et al., 2023). To the best of our knowledge, however, it has not yet been investigated in the domain of body image, let alone for MPB.

Method

Participants

The original sample consisted of 357 men; two participants were excluded for excessive missing data. The final sample thus consisted of 355 men between 19 and 64 years of age ($M = 29.43$, $SD = 8.94$), all with MPB. Regarding nationality, 46% were European, 24% North American, 19% African, 8% South American, 3% Asian, and the remainder (<1%) were Australian or had dual nationality. Regarding racial identity, 38% identified as White, 27% Hispanic/Latino, 21% Black, 8% Asian, 5% Mixed, and 1% Arab. One-fifth (21%) were classified as highly educated (attaining postgraduate education). Most participants were employed (64%), fewer were students (32%), and unemployed (4%). Almost half were in a relationship (45%).

Coding of the participants' open answers regarding their degree of baldness (application of the three-level coding scheme proposed by Hawk et al., 2000; $n = 239$) revealed that the majority had little MPB (64%; e.g., "mild," "early-stage"), almost a quarter had moderate MPB (26%; e.g., "partial," "medium"), and a minority (11%) had advanced MPB (e.g., "complete," "severe"). Regarding the duration of baldness ($n = 246$), the responses ranged from 6 months to 25 years. On average, participants' MPB onset occurred about 5 years previously ($M = 4.79$, $SD = 4.40$).

Procedure

This online study was part of a broader research project investigating the psychosocial impact of MPB from a critical medicalization perspective. The Research Ethics Committee of Leeds Beckett University approved the project. Participants were recruited in the summer of 2022 via Prolific, an online research participation platform. Inclusion criteria were sex (male), age (adult), language (English fluency), and ordinary MPB (any degree). Men were asked explicitly not to participate if their hair loss stemmed from medical conditions, including cancer treatment (e.g., chemo- and/or radiation therapy). To ensure a diverse sample to generalize results, we included participants of different ages and nationalities. Participation was voluntary and compensated.

Participants were assured that anonymity would be maintained and that the results would be used solely for research purposes. The study included an experimental variation of information about MPB (medicalizing vs. non-medicalizing vs. no specific information), with debriefing at the end of the survey. Because we measured the key variables used in this study before the experimental part (which were statistically independent of the latter), we analyzed the total sample as one entity. All materials, data, and code are publicly accessible via the Open Science Framework at https://osf.io/ufz9v/.

Measures

Rigid Perfectionism

We assessed participants' level of perfectionism with the 4-item Rigid Perfectionism Scale (Feher et al., 2020). Items (e.g., "It is important to me to be perfect in everything I attempt") were rated on a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Scale reliability was good, Cronbach's $\alpha = .87$.

Anxiety About Physical Aging

We used the 5-item Anxiety About Physical Aging Scale (Lasher & Faulkender, 1993) to assess participants' physical aging concerns. Items (e.g., "When I look in the mirror, it bothers me to see how my looks have changed with age") were rated on a 5-point scale, ranging from 1 (*not at all*) to 5 (*very much*). Scale reliability was sufficient, Cronbach's $\alpha = .74$.

Hair Loss Distress

We assessed participants' level of distress because of balding with the 9-item Quality of Life with MPB Scale (Razum

Table 1. Bivariate correlations and descriptive statistics

	Rigid perfectionism	Anxiety about physical aging	Baldness distress
Core variables			
Rigid perfectionism	1.00	.18***	.26***
Anxiety about physical aging		1.00	.48***
Baldness distress			1.00
Demographics			
Age	−.11*	.03	−.22***
Cultural context	.08	−.04	−.09
Racial identity	−.03	.03	−.01
Education	.07	.02	−.07
Employment	−.04	.02	−.12*
Relationship	.01	−.04	−.19***
Baldness degree	−.06	.07	.01
Baldness duration	−.14*	.00	−.20**
M	2.99	2.81	2.88
SD	0.99	0.83	0.88
Kurtosis	−0.01	−0.10	−0.13
Skewness	−0.94	−0.59	−0.63

Note. The scales measuring rigid perfectionism, anxiety about physical aging, and baldness distress each had a possible range from 1 to 5, with higher numbers indicating higher levels. Age and baldness duration were measured in years. Cultural context was coded as 1 = *European/North American* vs. 2 = *Other*; racial identity as 1 = *White* vs. 2 = *Non-White*; education as 1 = *Lower* vs. 2 = *Higher* (postgraduate education); employment and relationship as 1 = *No* vs. 2 = *Yes*; baldness degree as 1 = *Little* vs. 2 = *Moderate* vs. 3 = *Advanced*. $355 \leq n \leq 341$, except for the correlations and descriptives involving baldness degree (n = 239) and baldness duration (n = 246). *p < .05, **p < .01, ***p < .001.

& Vukasović Hlupić, 2022). Items (e.g., "I'm generally less satisfied with myself because of baldness") were rated on a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Scale reliability was good, Cronbach's $\alpha = .89$.

Results

Correlation Analysis

As Table 1 details, rigid perfectionism was positively related to both anxiety about physical aging and baldness distress, with the latter variables also showing a positive relationship. Participants with elevated perfectionism were more concerned about their physical aging in general and their balding head specifically. Thus, H1, stating a significant positive correlation between perfectionism and baldness distress, was confirmed.

Though not hypothesis-related, some correlations of demographics deserve attention (see Table 1 again). Younger participants and participants with more recent baldness onset reported more perfectionism and more baldness distress. Furthermore, being unemployed and single was positively related to baldness distress. These significant correlations became nonsignificant when partialling out age (all partial $rs \leq |.12|$, $ps \geq .06$). Thus, we controlled for age in the subsequent mediation analysis.

Mediation Analysis

Using a regression-based path analytical framework, we examined the second hypothesis, stating that aging anxiety mediates the association between perfectionism and baldness distress. We only considered age as a covariate because age completely explained all significant correlations between the other demographics and the variables included in the mediation model.

We used nonparametric bias-corrected bootstrapping with 5,000 resamples to test the significance of the indirect effect. Statistical significance was indicated by 95% confidence intervals (CIs) that excluded zero. As indicated by Monte Carlo power analysis (Schoemann et al., 2017), our sample size provided an adequate power of .93 to detect a medium-sized indirect effect, if it existed. Multicollinearity among the predictor and mediator variables was not an issue, as all tolerance values were above .95.

Figure 1 shows simple-path coefficients (Bs and their SEs) of the mediation analysis. In sum, 4% of the variance in anxiety about physical aging and 31% of the variance in baldness distress could be explained, $ps \leq .001$. There was both a direct effect of perfectionism on baldness distress (c' path), $B = 0.14$, $SE = 0.04$, 95% CI [0.06, 0.22], as well as an indirect effect through aging anxiety ($a \times b$ paths), $B = 0.08$, $SE = 0.03$, 95% CI [0.04, 0.14]. Thus, the data confirmed H2 in the sense of partial mediation of the relationship between perfectionism and baldness distress by aging anxiety.

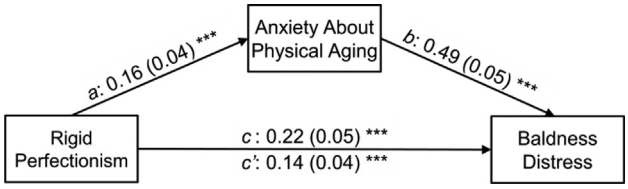

Figure 1. Mediation model. Path coefficients are unstandardized, with standard errors in parentheses. Age was considered as a covariate. *$p < .05$; **$p < .01$; ***$p < .001$.

To generalize the mediation finding, we ran several additional analyses (for detailed results, see the supplementary material at https://osf.io/urtg6). Specifically, we tested whether age moderated the indirect effect by repeating the mediation analysis and including age interactions for each of the three paths. None of the interactions were significant, and the result pattern remained unchanged. Analogously, we used baldness degree and duration as well as cultural context (European/North American vs. other) and racial identity (White vs. other) as possible moderator variables. Again, none of the interactions were significant. Lastly, we tested an alternative mediation model in which we reversed the dependent and independent variables. This time, the indirect effect was not significant.

Discussion

The present study examined three factors that might be particularly important for the psychology of MPB: baldness distress, aging anxiety, and perfectionism. Referring to theory and prior research, we hypothesized that there would be a positive correlation between rigid perfectionism and baldness distress (H1), mediated by anxiety about physical aging (H2). Our data supported the expected correlation as well as mediation. Variance in baldness distress could be partly explained by perfection directly and partly through aging anxiety indirectly. In sum, perfectionism and aging anxiety explained almost one-third of the variance in baldness distress.

Additional analyses showed that the mediation from perfectionism through aging anxiety to baldness distress was moderated neither by baldness factors (degree and duration of MPB) nor by demographics (age, cultural context, and racial identity). This indicates a high degree of generalizability of our main finding: Perfectionism is a risk factor for both aging anxiety and distress about MPB, as a highly age-related bodily change. Finally, we could reject an alternative mediation model with reversed dependent and independent variables.

The subsequent discussion focuses on two issues: our finding of a partial rather than complete mediation by aging anxiety and the implications of our findings for a psychological understanding and treatment of MPB in the public health domain.

Partial Mediation by Aging Anxiety

Aging anxiety only partially mediated the association between perfectionism and baldness distress. Some researchers (e.g., Preacher & Kelley, 2011; Rucker et al., 2011) question the utility of differentiating between partial and complete mediation. It is regarded as somewhat artificial as it reflects sample size. Also when applying bootstrapped confidence intervals instead of conventional significance testing, in large samples even marginal direct effects remain significant when including the mediator variable in the regression analysis.

Nevertheless, we think partial mediation should motivate researchers to advance their model-building. That aging anxiety did not turn out as a *complete* mediator in the present study might point to other relevant mediators not (yet) included in our model, such as internalization of the conventional masculine appearance ideal (Thompson et al., 2004; Thompson & Pleck, 1986), preoccupation with appearance-related self-discrepancies (Brown et al., 1990; Littleton et al., 2005), or stereotypically masculine stoicism (Mahalik et al., 1998; Reeser & Gottzén, 2018). Alternatively, we cannot rule out that perfectionism has a predominant direct effect on baldness distress.

We could, however, reject a mediation model with reversed variables. This reinforces our hypothesis that aging anxiety (partially) mediates the effect of perfectionism on baldness distress – and not vice versa. Also, the mediation we found is consistent with mental health research on the perfectionism-anxiety relationship (for an overview, see Burgess & Dibartolo, 2016; Kawamura et al., 2001). Our results suggest perfectionism is a personality trait that increases the risk of developing maladaptive patterns, such as struggling with the aging body in general and MPB specifically.

MPB as a Psychological Problem

In our mediation model, the strongest association was between aging anxiety and baldness distress. Prior research has shown that aging anxiety is strongly related to using anti-aging medicine (Katz & Gish, 2015; Sarwer & Crerand, 2008). As an age-related phenomenon, MPB has become increasingly medicalized over the last decades (Harvey, 2013; Szymczak & Conrad, 2006). At present, two drugs (finasteride and minoxidil) and hair transplantation are marketed as effective treatment options (Kanti et al., 2018). Each, however, carries the risk of producing only minimal cosmetic "improvements" besides serious side

effects and high financial costs (Adil & Godwin, 2017; Kelly et al., 2016; Nestor et al., 2021). Against this background, a relatively high number of MPB patients are dissatisfied with treatment results, even when scalp coverage has objectively improved (Liu et al., 2019; Lulic et al., 2017).

Dermatologists speak of "obsessive" or "insatiable" patients when referring to a patient group that might be inappropriate for cosmetic procedures because of their excessive focus on bodily imperfections and unrealistic treatment expectations (Sarwer, 1997; see also Bowyer et al., 2016). In this vein, some researchers have argued that perfectionism might be a contraindication for such procedures (Garnham, 2013; Hewitt et al., 2003).

The present study underlines that MPB might be a psychological rather than a medical problem, namely, a problem of rigid perfectionism and aging anxiety. We therefore think that some balding men who are distressed about their appearance – especially those with extreme bodily standards and aging concerns – should be offered psychological support rather than interventions. Psychological counselors and therapists can help men develop healthier perspectives on MPB. Effective tools for working with balding men could be, for example, understanding how perfectionist attitudes and body image ideals developed within the family and wider social contexts (Mikail et al., 2022) as well as detecting flawed beliefs about having a "perfect" body (Lundh, 2004), including keeping a full head of hair into old age (Ricciardelli, 2011).

Strengths and Limitations

Our study has strengths and limitations. It is the first study to investigate the anxiety-mediated association between perfectionism and distress in the domain of body image, specifically MPB. Another strength is the recruitment of a diverse, less biased sample of balding men compared to previous samples that tended to be White and treatment-seeking (Jankowski & Frith, 2022). As the main result – partial mediation – was not further moderated by participant's age, baldness degree or duration, cultural context, or racial identity, we have some reasons to generalize our results. We address this point with caution since our sample was rather young and still North American/European dominated. A third strength of our study concerns independence. Because most research on the psychosocial impact of MPB is sponsored by pharmaceutical companies that offer anti-MPB products, possible conflicts of interest cannot be excluded (Jankowski & Frith, 2022). We have no such conflicts.

Yet, we must acknowledge several limitations of our study. One limitation is the cross-sectional design. We considered perfectionism a predictor variable because previous research showed that perfectionism emerges early in life and is relatively stable across the lifespan (Hong et al., 2017; Damian et al., 2022). Nevertheless, applying a prospective longitudinal design is required for causal inference. Interestingly, in the present study, older participants and those with a longer MPB history showed less baldness distress, which might point to adaptive processes – an assumption that could also be tested with a prospective longitudinal design. Future research might include the differentiation between general anxiety and specific anxiety about physical aging. General anxiety has been shown to precede both perfectionism and aging anxiety (Gautreau et al., 2015). A further minor limitation concerns the low rate of participants (67%) who disclosed the specific degree and duration of baldness. The latter might reflect body shame, but this remains speculative without further data.

Conclusion

The present study verified that men with MPB who scored high in rigid perfectionism also reported more baldness distress. Participants' anxiety about physical aging partially mediated this association. Results thus point to the derogatory role that unfulfillable standards of excellence and unattainable ideals of youthfulness might play when men go bald – an entirely natural, nonpathological aging process. The results also point to and call for future research on the associations of perfectionism and aging anxiety with different ways of dealing with MPB, such as acceptance coping versus medical treatment (Kranz, 2011). Finally, the results should be placed within the larger perspective of an "ageless society," in which stigmatization and medicalization of aging easily become a vicious circle.

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ORCID
Dirk Kranz
https://orcid.org/0000-0001-6767-3654
Josip Razum
https://orcid.org/0000-0002-2633-3271
Glen Shaun Jankowski
https://orcid.org/0000-0003-0349-9356

Dirk Kranz
Department of Psychology
Trier University
54286 Trier
Germany
dirk.kranz@uni-trier.de