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Albert E. Mannes¹

Abstract

Three studies contribute to the literature on dominance and nonverbal behavior (Ellyson & Dovidio, 1985) by examining how a man's choice to shave his head influences person perception. In Study 1, men with shaved heads were rated as more dominant than similar men with full heads of hair. In Study 2, men whose hair was digitally removed were perceived as more dominant, taller, and stronger than their authentic selves. Study 3 extends these results with nonphotographic stimuli and demonstrates how men experiencing natural hair loss may improve their interpersonal standing by shaving. Theories of signaling, norm violation, and stereotypes are examined as explanations for the effect. Practical implications for men's psychological, social, and economic outlooks are also discussed.

Keywords

power, nonverbal, masculinity, person perception

“Anyone can be confident with a full head of hair. But a confident bald man—there's your diamond in the rough.”—Larry David

An undeniable truth of the human condition is that appearances matter. The comely and tall tend to earn more than the homely and short (Hamermesh & Biddle, 1994; Judge & Cable, 2004); mature-faced political candidates are perceived as more competent and are more likely to win elections than their babyfaced competitors (Todorov, Mandisodza, Goren, & Hall, 2005; Zebrowitz & Montepare, 2005); and executives who look powerful tend to lead more profitable companies (Rule & Ambady, 2008).

People also make inferences about personality based on one's appearance (Naumann, Vazire, Rentfrow, & Gosling, 2009). For example, small eyes and thin lips communicate dominance in both men and women, whereas larger eyes and fuller lips communicate submissiveness (Keating, 1985). One view of dominance conceptualizes it as a trait that causes a person to be perceived as powerful by others (Livingston, Cohen, & Halevy, 2012). Dominance may be signaled through one's disposition, behaviors, and physical features (Carney, Hall, & LeBeau, 2005; Ellyson & Dovidio, 1985; Hall, Coats, & LeBeau, 2005). These in turn have been shown to increase one's interpersonal influence and leadership success (Anderson & Kilduff, 2009; Judge, Bono, Ilies, & Gerhardt, 2002). In one notable finding, Mueller and Mazur (1996) reported that facial dominance in graduation photographs of West Point cadets predicted promotion to the rank of General over 20 years later. Rule and Ambady (2011) suggest that powerful-looking people

are afforded more opportunities to display their competence and leadership.

Building on these findings, the present research examines the impact of a man's choice to shave his head on perceptions of his dominance. This is worthwhile for three reasons. First, although considerable research has focused on fixed physical features that affect person perception, such as height (Judge & Cable, 2004) or babyfacedness (Livingston & Pearce, 2009), this study examines a malleable feature of one's appearance. Thus it contributes to the growing literatures on nonverbal behavior and dominance (Ellyson & Dovidio, 1985; Hall et al., 2005) as well as self-expression (Naumann et al., 2009). Next, the choice by men to shave their heads presents an interesting paradox. Across time and cultures, a thick mane has been associated with strength, youth, and virility, and its absence with weakness, age, and impotence (Bromberger, 2008; Kligman & Freeman, 1988; Leach, 1958). Ethnographic research has equated a shorn head with “symbolic castration,” restrained sexuality, and subjugation (Berg, 1951; Hallpike, 1969; Leach, 1958). Thus the choice by men to willfully dispense with their hair is puzzling, and explanation for it may lie with how the look or behavior is perceived in these times by others. Finally, this research has clear practical implications. Everyday experience

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suggests that men often shave their heads as a response to natural hair loss. Male pattern baldness, or androgenic alopecia, is a condition half of all men will experience by age 50 (Soni, 2009), and it has important psychological, social, and economic consequences. Though common and normal, it has been linked with poorer self-esteem and body image and with greater stress and depression (Cash, 1999; Norwood, 1975). Balding men are perceived by others to be older than their peers by 5–10 years and to be less agreeable, less assertive, and less attractive (Cash, 1999; Henss, 2001). Accordingly, men go to great lengths to hide or reverse their natural hair loss (medicinal and surgical hair restoration is a \$3.5 billion annual enterprise; Farhi, 2003). If shaving one's head communicates dominance, then doing so may attenuate or even reverse the loss of standing associated with thinning hair.

Theoretical Background

My predictions about the effect of scalp shaving on dominance perceptions draw upon theories of signaling (Spence, 1973; Zahavi & Zahavi, 1997), power (Keltner, Gruenfeld, & Anderson, 2003; Van Kleef, Homan, Finkenauer, Gundemir, & Stamkou, 2011), and stereotypes (Kunda, 1999; Macrae & Bodenhausen, 2000). First, given the historical and cultural association of hair with power, men may paradoxically signal their dominance by willingly shaving their heads. As Synnott (1987, p. 402) described these men,

They reject an extremely powerful and popular symbol of life and youth and elect a baldness which is an equally powerful symbol of age and death. Perhaps this choice expresses a transcendence of conventional views of masculinity and life and thus these individuals become symbolically more alive and more virile.

For a signal to be effective, it must be costly (Spence, 1973; Zahavi & Zahavi, 1997). For example, gazelles who bounce repeatedly in place (i.e., stot) in the presence of a predator “handicap” themselves by making capture more likely (Zahavi & Zahavi, 1997). Thus only the fittest gazelles can risk this display; the young, old, and meek cannot reliably taunt predators in this way and still expect to outrun them. Stotting, therefore, is a credible signal of a gazelle's fitness that tells predators to look elsewhere for their dinner (Dawkins, 2006; Zahavi & Zahavi, 1997). Similarly, the loss of cranial hair is costly to men—psychologically, socially, and economically (Cash, 1999; Farhi, 2003; Henss, 2001). In this sense, it handicaps men in the pursuit of positive life outcomes relative to men with full heads of hair. Thus only those men who are most confident in their all-around fitness can reliably choose to shave their heads.

A second theory is that by rejecting a “popular symbol of life” (Synnott, 1987, p. 402), men who shave their heads violate a societal norm that prizes hair. Keltner, Gruenfeld, and Anderson (2003) argue that power reduces behavioral inhibition, which allows the powerful to act with less regard for consequences than the powerless. Accordingly, when people

witness someone violate standards of acceptable or conventional behavior, they may infer the person is powerful. To illustrate this, Van Kleef, Homan, Finkenauer, Gundemir, and Stamkou (2011) asked students to evaluate a man smoking outside a café either adhering to societal norms (e.g., using the ashtray) or violating them (e.g., placing his feet on a chair). The man was rated as substantially more powerful when he violated societal norms. So to the extent that shaving one's head also violates culturally valued or prescribed behavior, people may perceive men who do so as dominant.

Finally, dominance may also be linked with a shaved head through stereotypes. In U.S. society, men with shaved heads are often found in traditionally masculine professions (e.g., sports, the military, and law enforcement). Hollywood, moreover, has long featured action-adventure stars with shaved heads (e.g., Yul Brynner and Bruce Willis). Thus encountering a man who shaves his head may activate stereotypical traits associated with athletes and action heroes, such as masculinity, toughness, or strength (Kunda, 1999; Macrae & Bodenhausen, 2000).

I conducted three studies to investigate the effects of a shorn scalp on perceptions of dominance in men. Study 1 asks whether men with shaved heads are perceived more or less dominant than men of similar age with full heads of hair. Study 2 isolates the effect of shaving from other unobserved differences associated with dominance, and it tests confidence, norm violation, and masculinity as mediators of the effect. Study 3 addresses an alternative explanation. Because medical science has linked androgenic alopecia with testosterone (Soni, 2009), people may infer that balding men, and those that shave in reaction to their hair loss, possess high levels of this stereotypically masculine hormone. If so, this should confer similar levels of dominance on men experiencing natural hair loss and those who shave their heads, and both groups should be viewed as more dominant than men with full heads of hair. Although this seems unlikely given the generally negative effects of natural hair loss on person perception (Cash, 1999; Henss, 2001), the argument is formally tested in Study 3.

Study 1

Method

Photographs of 25 men enrolled in a U.S. university's full-time MBA program were selected from the institution's online directory. Each man was photographed on an identical background from the chest up wearing a dark suit and tie. Ten of the men (five White, five Black) had shaved heads. The remaining 15 men (10 White, 5 Black) wore their cranial hair in styles ranging from closely cropped and short to neck length and full. The men had minimal facial hair, if any (none had beards), and none were visibly balding. The photographs were divided into five sets, each comprising two men with shaved heads (one White, one Black) and three men with hair (two White, one Black).

Fifty-nine students ($M_{\text{age}} = 20.4$ years; 35 female) from a southeastern U.S. university completed the study in exchange

Table 1. Perceptions of Shaved Men in Study 1

Trait	Hairstyle		t Value	p Value	Cohen's d
	Hair	Shaved			
Dominance	3.64 (0.51)	4.14 (0.45)	2.52	.019	1.05
Agreeableness	4.40 (0.69)	4.44 (0.70)	0.15	.882	0.06
Attractiveness	3.73 (0.61)	3.61 (0.65)	-0.48	.637	-0.20
Perceived age	32.17 (2.39)	33.55 (3.28)	1.22	.236	0.51
N	15	10			

Note. Means are reported with standard deviations within parentheses.

for a small payment. Participants viewed the photographs of all 25 men on private computer terminals in the university's behavioral laboratory. The order of sets and photographs within sets varied randomly. Participants rated each man on three items to assess dominance (*How [powerful, influential, authoritative] does this man look?* $\alpha = .92$) and three to assess agreeableness (*How [agreeable, friendly, pleasant] does this man look?* $\alpha = .89$). Ratings were made on a 7-point scale (1 = *not at all* to 7 = *very*). A nonoverlapping set of 60 online participants ($M_{\text{age}} = 22.0$ years; 37 female) rated the attractiveness of each man on a single item (1 = *not at all* to 7 = *very much*) and estimated his age.

Results

Participants' ratings on the four attributes were averaged for each of the 25 men, and all analyses were conducted on the mean values of these attributes (see Rule & Ambady, 2008, for a similar approach). Mean reliabilities (Shrout & Fleiss, 1979.) were .90 for dominance .96 for agreeableness, and .94 for attractiveness and perceived age. Summary statistics are presented in Table 1.

A multivariate omnibus test rejected that hairstyle had no effect on the four rated attributes, $F(4, 21) = 3.75, p = .019$. Table 1 indicates that the men differed most in their perceived dominance. A 2 (Hairstyle) \times 2 (Race) analysis of variance (ANOVA) indicated that the 10 shaved men ($M = 4.14, SD = 0.45$) were rated as more dominant than the 15 men with hair ($M = 3.64, SD = 0.51$), $t(21) = 2.30, p = .032$. Differences between the dominance ratings of Black men ($M = 4.00, SD = 0.49$) and White men ($M = 3.73, SD = 0.56$) were not significant, $t(21) = 0.97, p = .343$, nor was the interaction between hairstyle and race, $t(21) = 0.34, p = .740$. A subsequent regression of dominance on hairstyle and race controlling for attractiveness and perceived age left the basic finding unchanged.

Discussion

These initial results suggest that people perceive men with shaved heads as dominant. The finding is surprising in light of considerable psychological evidence linking baldness with diminished standing (Cash, 1999; Henss, 2001). But that evidence, which speaks primarily to natural male pattern baldness, has little to say about men who choose baldness. In this study, it

cannot be ruled out that these men possessed other unobserved qualities correlated with the choice to shave their heads which drove perceptions of dominance. In other words, these men might be viewed as dominant regardless of their hairstyle. The question is, all else equal, does a shaved head communicate dominance?

In Study 2, people rated authentic photographs of four men with hair and photographs of the same men with their hair digitally removed. By holding the person constant and simply manipulating his hairstyle, the methodology in this study eliminates unobserved attributes as an explanation for differences in perceived dominance. Study 2 also explores mediators of the effect.

Study 2

Method

Adults ($N = 367$) from a national online panel in the United States rated eight photographs of men on several traits in exchange for a small payment. Thirteen people who either were suspicious of their photograph's authenticity or correctly guessed the purpose of the study were excluded from the analysis. Another 10 people who rated the photograph identically on all items were deemed inattentive and also excluded. This left a final sample of 344 participants ($M_{\text{age}} = 38.7$ years; 177 female; 269 White, non-Hispanic).

Photographs of four men rated in Study 1 were chosen as stimuli for this study. The four men were White with medium-length cranial hair and were similar in attractiveness and perceived age. An unaffiliated party unaware of the experimental hypotheses created another photograph of each man with his hair digitally removed. There were thus two photographs of each man, one featuring a shaved head (inauthentic) and the other featuring a full head of hair (authentic). All photographs were presented to the participants in monochrome.

Participants were presented one of the eight photographs in a between-subject design and rated the man on the following traits, presented in random order: dominance (*submissive-dominant, restrained-forceful, unassertive-assertive*; $\alpha = .83$), confidence (*unconfident-confident, unsure-self-assured, timid-proud*; $\alpha = .94$), norm violation (*normal-abnormal, proper-improper, seemly-unseemly*; $\alpha = .88$), masculinity (*weak-strong, frail-tough, not masculine-masculine*; $\alpha = .89$),

Table 2. Effects of Hairstyle on Perceptions in Study 2

Trait	Hairstyle		t Value	p Value	Cohen's d
	Hair	Shaved			
Dominance	4.93 (1.54)	5.55 (1.47)	3.78	<.001	0.41
Confidence	6.33 (1.60)	6.71 (1.71)	2.02	.044	0.22
Norm violation	3.31 (1.54)	3.26 (1.63)	-0.27	.788	-0.03
Masculinity	5.64 (1.43)	6.19 (1.52)	3.34	.001	0.36
Attractiveness	5.92 (1.68)	5.41 (1.82)	-2.63	.009	-0.29
Age	33.71 (6.56)	37.48 (7.31)	5.33	<.001	0.58
Height (inches)	69.88 (1.91)	70.72 (2.01)	4.09	<.001	0.44
Strength (pounds)	175.97 (44.18)	198.26 (51.83)	4.24	<.001	0.46
Leadership	4.80 (0.98)	4.87 (1.02)	0.59	.557	0.06
N	174	170			

Note. Means are reported with standard deviations within parentheses. Calculation of test statistics and effect sizes control for target fixed effects ($df = 3$).

and attractiveness (*unattractive–attractive, homely–handsome, ugly–good-looking*; $\alpha = .95$).¹ Ratings were completed on a 9-point scale. Following the ratings, participants estimated the man's age, height, and strength (maximum bench press, in pounds), as well as leadership potential (*Please rate this man's potential to be a successful leader in group or organizational settings*; 7-point scale anchored by *far below average* and *far above average*). Participants were asked about their demographic characteristics, their suspicions about the photograph, and the study's purpose before exiting the survey.

Results

Table 2 presents summary statistics for the measured variables. A multivariate omnibus test rejected that the shaving manipulation had no effect on the collective measures, $F(9, 339) = 10.08, p < .001$. Ratings of dominance, confidence, masculinity, age, height, and strength were all higher for these men when pictured with a digitally shaved head than with hair. Attractiveness, in contrast, was significantly lower with a shaved head. Norm violation and leadership potential were unaffected by hairstyle.

The methodology of Preacher and Hayes (2008) was used to assess the indirect effects of multiple mediators. Dominance was modeled as a function of one independent variable (hairstyle), three mediators (confidence, norm violation, and masculinity), and control variables (attractiveness, estimated age, and target fixed effects). The total unstandardized effect of the shaving manipulation on perceptions of dominance was positive and significant, $c = 0.67, SE = 0.17, 95\%$ confidence interval (CI) [0.34, 0.99], where c equals the difference in means holding constant attractiveness, perceived age, and target fixed effects. About 42% of this effect was due to the indirect effect of hairstyle on perceptions of masculinity, $a_1b_1 = 0.28, SE = 0.08, 95\%$ CI [0.14, 0.48]. Shaving increased the men's perceived masculinity, $a_1 = 0.68, SE = 0.14, 95\%$ CI [0.40, 0.96], which in turn increased their perceived dominance, $b_1 = 0.42, SE = 0.06, 95\%$ CI [0.29, 0.54]. Another 20% was due to the indirect effect on perceptions of confidence, $a_2b_2 = 0.13, SE = 0.06,$

95% CI [0.04, 0.27]. Shaving increased the men's perceived confidence, $a_2 = 0.54, SE = 0.17, 95\%$ CI [0.21, 0.87], which in turn increased their perceived dominance, $b_2 = 0.24, SE = 0.06, 95\%$ CI [0.13, 0.35]. The indirect effect of norm violation was not significant, $a_3b_3 = -0.06, SE = 0.04, 95\%$ CI [-0.15, 0.01]. Holding these perceptions constant, the direct effect of the shaving manipulation on perceived dominance was positive and significant, $c' = 0.32, SE = 0.15, 95\%$ CI [0.02, 0.61].

Discussion

Men who had their hair digitally removed in a photograph were perceived as more dominant by the respondents in this study than the same men with hair, and this effect was due to a large degree by their higher perceived confidence and masculinity. These perceptions, moreover, extended beyond attribute ratings to dominance-related physical characteristics of the men. Namely, the men were viewed as nearly an inch taller and 13% stronger when pictured with shaved heads versus with hair. Because only their hair was altered in these photographs, other factors cannot account for these differences.

Study 3 pursues a number of objectives. First, it explores an alternative explanation for the differences in perceived dominance. Namely, if people believe balding or bald men have high levels of testosterone, then men with thinning hair should also be viewed as more dominant than men with hair and similarly dominant as men with shaved heads. Second, the results of these comparisons should shed light on whether men with thinning hair can alter their interpersonal standing by shaving their heads. Finally, by using a simple description of a man for its stimulus, Study 3 examines whether the current findings generalize beyond the photographed men featured in the initial studies.

Study 3

Method

Adults from an online panel ($N = 588$) completed a 10-min survey in exchange for a small payment. Thirty-six people

Table 3. Effects of Hairstyle on Perceptions in Study 3

Attribute	Hairstyle			F Value	MSE	p Value	η^2
	Shaved	Thinning	Thick				
Dominance	5.56 (1.35)	5.22 (1.32)	5.37 (1.36)	2.80	1.81	.062	.01
Confidence	6.53 (1.46)	6.15 (1.64)	6.64 (1.45)	5.31	2.31	.005	.02
Masculinity	6.56 (1.41)	6.00 (1.38)	6.52 (1.36)	9.39	1.92	< .001	.03
Norm violation	3.55 (1.49)	3.28 (1.51)	2.93 (1.48)	7.94	2.22	< .001	.03
Attractiveness	5.82 (1.44)	5.61 (1.41)	6.16 (1.57)	6.69	2.17	.001	.02
Leadership	4.73 (0.95)	4.51 (1.00)	4.64 (1.00)	2.36	0.96	.096	.01
Strength (lbs)	205 (70)	187 (52)	193 (53)	4.53	3,343	.011	.02
N	175	190	187				

Note. Means are reported with standard deviations within parentheses. Test statistics and effect sizes are from one-way analyses of variance (ANOVAs).

who made identical ratings on all items were deemed inattentive and excluded from the analysis, leaving a final sample of 552 participants ($M_{\text{age}} = 44.1$ years; 279 female; 441 White, non-Hispanic). They were presented with a verbal description of a man and asked to type the description verbatim in a space provided. This description was identical for all participants except for the description of the man's hairstyle, which served as the manipulation in the between-subject design:

John is a white, non-Hispanic male, 35 years of age. He works in the health care sector and has a basic college education. He lives in the mid-west United States. He is 5' 9" tall, weighs 180 pounds, and has [a shaved head/thinning brown hair/thick brown hair].

On subsequent screens they were presented with his description again and asked to evaluate the man on the following randomly ordered traits: dominance (*submissive–dominant*, *restrained–forceful*, and *unassertive–assertive*; $\alpha = .82$), confidence (*unconfident–confident*, *timid–proud*, and *unsure–self-assured*; $\alpha = .91$), norm violation (*normal–abnormal*, *proper–improper*, and *seemly–unseemly*; $\alpha = .85$), masculinity (*weak–strong*, *frail–tough*, and *unmasculine–masculine*; $\alpha = .89$), and attractiveness (*unattractive–attractive*, *homely–handsome*, and *ugly–good-looking*; $\alpha = .93$).² All ratings were on a 9-point scale. Following the ratings, participants estimated the man's strength (maximum bench press, in pounds) and leadership potential on the same scale used in Study 2. Participants were asked for their demographic characteristics before exiting the survey.

Results

Table 3 presents summary statistics and results of the one-way ANOVAs for each measure. A multivariate omnibus test rejected that the manipulation of hairstyle had no effect on the rated attributes, $F(14, 549) = 3.83, p < .001$.

If dominance perceptions are driven by the belief that natural hair loss results from high levels of testosterone, as discussed above, then (a) there should be little difference

between describing John with thinning hair or with a shaved head and (b) John should be viewed least dominant with thick hair. The pattern of means in Table 3 clearly indicates this was not the case. Consistent with prior findings on natural hair loss and person perception (Cash, 1999; Henss, 2001), John was viewed least favorably on all attributes except for norm violation when described with thinning hair. Conversely, John was rated the highest in dominance, masculinity, norm violation, leadership potential, and strength when described with a shaved head. As a result, there were significant differences in the ratings of John when described with a shaved head versus thinning hair for dominance ($p = .018$), confidence ($p = .020$), masculinity ($p < .001$), leadership ($p = .033$), and strength ($p = .003$), $F(5, 549) = 4.42, p < .001$. According to the testosterone-based explanation, these differences should not have emerged. John with thick hair was rated the highest on confidence (contrary to expectations) and attractiveness.

As in Study 2, I examined the extent to which masculinity, confidence, and norm violation mediated the difference in John's dominance ratings in the shaved head and thick hair conditions (the ratings of John in the thinning hair condition were omitted for this analysis). Dominance was modeled as a function of one independent variable (hairstyle), three mediators (masculinity, confidence, and norm violation), and one control variable (attractiveness). The total unstandardized effect of describing John with a shaved head versus thick hair on dominance perceptions was positive and significant, $c = 0.26, SE = 0.14, 95\% \text{ CI } [0.01, 0.54]$, where c equals the difference in means holding attractiveness constant. Of the three mediators, only the indirect effect of masculinity was significant, $a_1b_1 = 0.04, SE = 0.03, 95\% \text{ CI } [0.00, 0.12]$. John was perceived as more masculine with a shaved head, $a_1 = 0.23, SE = 0.12, 95\% \text{ CI } [0.00, 0.47]$, which in turn increased his perceived dominance, $b_1 = 0.19, SE = 0.07, 95\% \text{ CI } [0.06, 0.32]$. The indirect effects of confidence, $a_2b_2 = 0.02, SE = 0.03, 95\% \text{ CI } [-0.03, 0.09]$, and norm violation, $a_3b_3 = 0.05, SE = 0.03, 95\% \text{ CI } [-0.01, 0.12]$, were not significant. Holding constant these attributes, the remaining direct effect of hairstyle on perceived dominance was not significant, $c' = 0.15, SE = 0.14, 95\% \text{ CI } [-0.11, 0.43]$.

Discussion

People perceived John as more dominant when described with a shaved head than with thick or thinning hair. This difference emerged based only on a short and pallid description of an otherwise identical man, so other unobserved differences cannot account for the effect. If people infer that men with natural hair loss are high in testosterone, then John should have been rated more dominant with thinning hair than with thick hair, and similarly dominant with thinning hair or a shaved head. That he was not rules out this explanation for the findings in the prior studies.

Results of the mediation analysis in this study differed from those in Study 2 in two respects. First, the mediation was complete in this study but only partial in Study 2. This difference likely reflects dominance-related perceptions activated by the photographs in Study 2 that were not activated by the verbal description in Study 3. Estimates of height and age, for example, were positively correlated with dominance ratings in Study 2 (r s of .21 and .17, respectively), but these were held constant in Study 3. Second, confidence was not a significant mediator in this study. This is entirely attributable to the smaller impact of the manipulation on confidence relative to its effect in Study 2, although it is not clear why this was the case. Whether men with shaved heads are viewed as more confident thus requires further study.

General Discussion

The three studies presented here provide consistent evidence that a shaved scalp is associated with dominance. Participants in Study 1 rated men who shaved their heads as more dominant than men with full heads of hair, even after controlling for differences in attractiveness and perceived age. Study 2 found that men whose heads were digitally shaved were viewed as more dominant, taller, and stronger than their natural selves. And Study 3 extended these results to simple descriptions of men with shaved heads versus thick or thinning hair.

Although the effect was found in all three studies, its magnitude differed across them. The standardized mean difference (Cohen's d) in perceived dominance between the men with full heads of hair and those with shaved heads was 1.05 in Study 1, 0.41 in Study 2, and 0.14 in Study 3. These differences reflect in part the methods employed in each. Study 1 used authentic and vivid stimuli in a within-subject design that enhanced the salience of the men who shaved their heads; this salience was reduced in the between-subject design of Studies 2 and 3. Study 3, moreover, used only a verbal description of the man, in contrast to the photographs used in the first two studies.

The observed effects were not explained with theories of power and norm violation (cf. Van Kleef et al., 2011). Rather, explanations based on signaling and stereotypes received more support in these studies. Choosing to dispense with one's hair is arguably a form of nonverbal behavior, a form of expression which communicates information about the self otherwise difficult to observe, much like dressing well communicates extraversion (Naumann et al., 2009) and an expansive posture

communicates power (Huang, Galinsky, Gruenfeld, & Guillory, 2011). The information in this case is relevant to what scholars call "the vertical dimension of social relations" (Hall et al., 2005), a growing area in social psychology. In U.S. society, moreover, shaved heads are often found on men in traditionally masculine professions, so dominance may emerge through stereotypical associations with these figures.

The news, however, was not unequivocally positive for men considering the shaved look. Study 2 found that shaving added almost 4 years to the men's average age, the largest standardized difference between the photographs (see Table 2). And in Studies 2 and 3, the men were viewed as considerably less attractive with shaved heads as with hair. This may be because a shaved head is atypical or unusual, whereas attractiveness is correlated with what is prototypical or average (Potter & Corneille, 2008). Shaving therefore appears to have complex effects on how men are perceived.

The limits of these studies must also be recognized. First, they provide no evidence about the behavioral consequences of these perceptions. Thus a logical next step in this research would be to examine these effects in a live interpersonal context. For example, prior research suggests that people are more conciliatory in bargaining situations toward people they view as dominant figures (Diekmann, Tenbrunsel, & Galinsky, 2003; Kim, Pinkley, & Fragale, 2005). If so, then it is reasonable to predict, all else equal, that men with shaved heads will fare better economically in negotiations. Second, the studies were conducted solely in the United States, so these effects may not extend to other cultures. If country-specific stereotypes do play a role, then additional research could explore, for instance, whether the connection between a shaved head and masculinity is stronger in countries with compulsory military service for men (e.g., Israel) than in countries without it (e.g., Japan). Finally, learning more about men who do shave their heads would allow researchers to better understand these dominance perceptions. This includes assessing the accuracy of these perceptions as well as identifying correlates of head shaving not addressed in these studies (e.g., openness to experience).

The practical implications of this research are also worth noting. Instead of spending billions each year trying to reverse or cure their hair loss, the counterintuitive prescription of this research to men experiencing male pattern baldness is to shave their heads. Study 3 suggests that doing so will increase their interpersonal standing on a host of dominance-related traits, including their potential for leadership. At the very least, these benefits may offer palliative relief from the psychological costs associated with natural hair loss. But they may also lead to improved social and economic outcomes (Rule & Ambady, 2011). Accordingly, these men might better improve their well-being by finishing what Mother Nature has started.

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Notes

1. Competence, influence, and personality were also included as filler traits but are not discussed further in this analysis. Details are available from the author.
2. Measures of personality were also included as filler traits but are not discussed in this analysis. Details are available from the author.

References

- Anderson, C., & Kilduff, G. J. (2009). Why do dominant personalities attain influence in face-to-face groups? The competence-signaling effects of trait dominance. *Journal of Personality and Social Psychology, 96*, 491–503. doi: 10.1037/a0014201
- Berg, C. (1951). *The unconscious significance of hair*. London, England: Allen & Unwin.
- Bromberger, C. (2008). Hair: From the West to the Middle East through the Mediterranean. *Journal of American Folklore, 121*, 379–399.
- Carney, D. R., Hall, J. A., & LeBeau, L. S. (2005). Beliefs about the nonverbal expression of social power. *Journal of Nonverbal Behavior, 29*, 105–123. doi: 10.1007/s10919-005-2743-z
- Cash, T. F. (1999). The psychosocial consequences of androgenetic alopecia: A review of the research literature. *British Journal of Dermatology, 141*, 398–405. doi: 10.1046/j.1365-2133.1999.03030.x
- Dawkins, R. (2006). *The selfish gene (30th anniversary ed.)*. New York, NY: Oxford University Press.
- Diekmann, K. A., Tenbrunsel, A. E., & Galinsky, A. D. (2003). From self-prediction to self-defeat: Behavioral forecasting, self-fulfilling prophecies, and the effect of competitive expectations. *Journal of Personality and Social Psychology, 85*, 672–683. doi: 10.1037/0022-3514.85.4.672
- Ellyson, S. L., & Dovidio, J. F. (1985). *Power, dominance, and non-verbal behavior*. New York, NY: Springer-Verlag.
- Farhi, P. (2003, June 16). A loss cause: An advocate for the balding plugs into ungrowing radio market. *The Washington Post*, p. C1.
- Hall, J. A., Coats, E. J., & LeBeau, L. S. (2005). Nonverbal behavior and the vertical dimension of social relations: A meta-analysis. *Psychological Bulletin, 131*, 898–924. doi: 10.1037/0033-2909.131.6.898
- Hallpike, C. R. (1969). Social hair. *Man, 4*, 256–264.
- Hamermesh, D. S., & Biddle, J. E. (1994). Beauty and the labor market. *American Economic Review, 84*, 1174–1194.
- Henss, R. (2001). Social perceptions of male pattern baldness: A review. *Dermatology and Psychosomatics, 2*, 63–71. doi: 10.1159/000049641
- Huang, L., Galinsky, A. D., Gruenfeld, D., & Guillory, L. (2011). Powerful postures versus powerful roles: Which is the proximate correlate of thought and behavior?. *Psychological Science, 22*, 95–102. doi: 10.1177/0956797610391912
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology, 87*, 765–780. doi: 10.1037/0021-9010.87.4.765
- Judge, T. A., & Cable, D. M. (2004). The effect of physical height on workplace success and income: Preliminary test of a theoretical model. *Journal of Applied Psychology, 89*, 428–441. doi: 10.1037/0021-9010.89.3.428
- Keating, C. F. (1985). Gender and the physiognomy of dominance and attractiveness. *Social Psychology Quarterly, 48*, 61–70. doi: 10.2307/3033782
- Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110*, 265–284. doi: 10.1037/0033-295X.110.2.265
- Kim, P. H., Pinkley, R. L., & Fragale, A. R. (2005). Power dynamics in negotiation. *Academy of Management Review, 30*, 799–822. doi: 10.2307/20159169
- Kligman, A. M., & Freeman, B. (1988). History of baldness: From magic to medicine. *Clinics in Dermatology, 6*, 83–88. doi: 10.1016/0738-081X(88)90070-3
- Kunda, Z. (1999). *Social cognition: Making sense of people*. Cambridge, MA: MIT Press.
- Leach, E. R. (1958). Magical hair. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland, 88*, 147–164.
- Livingston, R. W., Cohen, T., & Halevy, N. (2012). *Deconstructing the effects of altruism on social status*. Manuscript submitted for publication.
- Livingston, R. W., & Pearce, N. A. (2009). The Teddy-Bear effect: Does having a baby face benefit Black Chief Executive Officers? *Psychological Science, 20*, 1229–1236. doi: 10.1111/j.1467-9280.2009.02431.x
- Macrae, C. N., & Bodenhausen, G. V. (2000). Social cognition: Thinking categorically about others. *Annual Review of Psychology, 51*, 93–120. doi: 10.1146/annurev.psych.51.1.93
- Mueller, U., & Mazur, A. (1996). Facial dominance of West Point cadets as a predictor of later military rank. *Social Forces, 74*, 823–850. doi: 10.1093/sf/74.3.823
- Naumann, L. P., Vazire, S., Rentfrow, P. J., & Gosling, S. D. (2009). Personality judgments based on physical appearance. *Personality and Social Psychology Bulletin, 35*, 1661–1671. doi: 10.1177/0146167209346309
- Norwood, O. T. T. (1975). Male pattern baldness: Classification and incidence. *Southern Medical Journal, 68*, 1359–1365.
- Potter, T., & Corneille, O. (2008). Locating attractiveness in the face space: Faces are more attractive when closer to their group prototype. *Psychonomic Bulletin & Review, 15*, 615–622. doi: 10.3758/PBR.15.3.615
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple

- mediator models. *Behavior Research Methods*, 40, 879–891. doi: 10.3758/BRM.40.3.879
- Rule, N. O., & Ambady, N. (2008). The face of success: Inferences from chief executive officers' appearance predict company profits. *Psychological Science*, 19, 109–111. doi: 10.1111/j.1467-9280.2008.02054.x
- Rule, N. O., & Ambady, N. (2011). Judgments of power from college yearbook photos and later career success. *Social Psychological and Personality Science*, 2, 154–158. doi: 10.1177/1948550610385473.
- Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86, 420–428. doi: 10.1037/0033-2909.86.2.420
- Soni, V. K. (2009). Androgenic alopecia: A counterproductive outcome of the anabolic effect of androgens. *Medical Hypotheses*, 73, 420–426. doi: 10.1016/j.mehy.2009.03.032
- Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87, 355–374. doi: 10.2307/1882010
- Synnott, A. (1987). Shame and glory: A sociology of hair. *British Journal of Sociology*, 38, 381–413. doi: 10.2307/590695
- Todorov, A., Mandisodza, A. N., Goren, A., & Hall, C. C. (2005). Inferences of competence from faces predict election outcomes. *Science*, 308, 1623–1626. doi: 10.1126/science.1114170
- Van Kleef, G. A., Homan, A. C., Finkenauer, C., Gundemir, S., & Stamkou, E. (2011). Breaking the rules to rise to power: How norm violators gain power in the eyes of others. *Social Psychological and Personality Science*, 2, 500–507. doi: 10.1177/1948550611398416.
- Zahavi, A., & Zahavi, A. (1997). *The handicap principle: A missing piece of Darwin's puzzle*. New York, NY: Oxford University Press.
- Zebrowitz, L. A., & Montepare, J. M. (2005). Appearance does matter. *Science*, 308, 1565–1566. doi: 10.1126/science.1114170

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