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Cues of Social Status: Associations Between Attractiveness, Dominance, and Status

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Abstract

Hierarchies naturally emerge in social species, and judgments of status in these hierarchies have consequences for social relationships and health. Although judgments of social status are shaped by appearance, the physical cues that inform judgments of status remain unclear. The transition to college presents an opportunity to examine judgments of social status in a newly developing social hierarchy. We examined whether appearances—as measured by raters' judgments of photographs and videos—provide information about undergraduate students' social status at their university and in society in Study 1. Exploratory analyses investigated whether associations differed by participants' sex. Eighty-one first-year undergraduate students (M_{age} = 18.20, SD = 0.50; 64.2% female) provided photographs and videos and reported their social status relative to university peers and relative to other people in society. As hypothesized, when participants were judged to be more attractive and dominant they were also judged to have higher status. These associations were replicated in two additional samples of raters who evaluated smiling and neutral photographs from the Chicago Faces Database in Study 2. Multilevel models also revealed that college students with higher self-reported university social status were judged to have higher status, attractiveness, and dominance, although judgments were not related to self-reported society social status. Findings highlight that there is agreement between self-reports of university status and observer-perceptions of status based solely on photographs and videos, and suggest that appearance may shape newly developing social hierarchies, such as those that emerge during the transition to college.

Keywords

subjective social status, status, attractiveness, dominance, appearance

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Social hierarchies exist across the animal kingdom, and relatively higher status confers greater access to resources and better chances of survival (Sapolsky, 2004). Status-based hierarchies similarly arise in humans, and higher status generally involves high levels of respect and admiration from other people. People develop their own subjective appraisal of their status, which can shape their behavior and have unique implications for health (Quon & McGrath, 2014). For instance, people who feel that they underperform relative to peers or feel that their peers have high threat potential with respect to status tend to engage in behaviors to undermine their peers and thereby maximize their own status (Lam et al., 2011; Reh et al., 2018). To develop a sense of their own standing within the social hierarchy, people must also identify the social status of other people, often based on immediate appearances. Such perceptions inform people's behavior; for instance, people become more physiologically vigilant and aware of others' emotions when interacting with peers of visibly higher status (Kraus & Mendes, 2014; Mattan et al., 2017). The present study examined how online raters' judgments of appearance, with respect to attractiveness

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and dominance, relate to judgments of status of incoming undergraduate students, a group actively developing status.

Social Status

Status is a multidimensional construct that broadly refers to one's relative rank among a group (Mattan et al., 2017). Social status is frequently defined with respect to socioeconomic status in society, or one's access to resources to promote financial success, and local status (also known as sociometric status; Anderson et al., 2015, 2012; Fiske et al., 2016; Goodman et al., 2001). Socioeconomic status is one important aspect of status in society, as people often use objective aspects of socioeconomic status such as income and education as a means of gauging their social standing relative to other people (Fiske et al., 2016; Kraus et al., 2013). Distinct from their socioeconomic status relative to other people in society, people also develop a sense of local status concerning their respect, influence, and prominence relative to peers in local contexts, such as one's local community, workplace, or school (e.g., Geiger et al., 2019; Wolff et al., 2010).

Local forms of status may be particularly important for local communities and for groups who have comparable levels of income and education (Anderson et al., 2001). In addition to objective aspects of socioeconomic status such as income and education, varied factors (e.g., morality, warmth) also contribute to higher status (Fiske et al., 2016). For instance, undergraduate students can have relative differences in family income, which can provide financial resources for success (e.g., afford supplemental resources such as outside tutoring, support themselves without part-time work). However, students also develop their own status on campus which can have important implications for academic and career success (e.g., leadership positions, social or professional help from peers; Brown et al., 2016; Houle, 2014; Walpole, 2003). Despite the potential importance of local status, limited research has examined people's ability to judge local status from appearance.

Observable Cues related to Social Status

In order to determine standing in the social hierarchy, individuals rely on aspects of appearance to judge other peoples' status. Indeed, status judgments based on photographs from Facebook and minute-long video interactions recorded in the lab predict both individuals' self-reported society social status and their objective socioeconomic status (rs = .23-.38; Becker et al., 2017; Kraus & Keltner, 2009). Another study found that external raters could reliably judge the local sociometric status of fraternity men with respect to fighting and leadership ability based on photographs, as indicated by their judgments aligning with acquaintances' judgments (Doll et al., 2014). Animals convey signals of their status through their appearance, such as through their size, and conspecifics must properly judge status from these signals in order to avoid conflict and competition for resources (e.g., Archie et al., 2012; Setchell & Wickings, 2005). People similarly judge social status based in part on aspects of physical appearance, such as body posture and facial expression (e.g., Holland et al., 2017; Mattan et al., 2017; Sell et al., 2014).

Specifically, attractiveness (i.e., how physically appealing one is to others) and dominance (i.e., the degree of power one exerts in a group) are two observable cues that influence judgments of other individuals' social status because they each provide a means for individuals to gain status (e.g., Cheng et al., 2013; Henrich & Gil-White, 2001; Jæger, 2011; Langlois et al., 2000). Attractiveness can convey to possible mates that a person is in good health, and dominance can discourage other people from engaging in conflict and competing for resources (Buss & Shackelford, 2008; Cheng et al., 2013). Consistent with this work, dominance judgments from photographs have been found to predict compensation for female CEOs and rank among male military officers (rs = .10 – .68; Mueller & Mazur, 1996; Muller & Mazur, 1997; Rule & Ambady, 2009). Regarding attractiveness, one prior study of adult faces identified attractiveness as a visual cue of social class in gray-scale images (Bjornsdottir & Rule, 2017). Additionally, higher physical attractiveness judgments based on 10-s video clips were found to be associated with higher local sociometric status judgments for men but not women, suggesting that the association of some cues with status may differ by gender (Anderson et al., 2001). Further research is needed regarding the extent to which judgments of attractiveness and dominance are related to different facets of status (i.e., self-reported society status vs. local status).

People who are judged to be less attractive or dominant may be treated differently, which can prompt them to report lower social status. For instance, people who are judged as more attractive tend to also be judged to be more trustworthy, which may enable them to have more social influence (Oosterhof & Todorov, 2008; Xu et al., 2012). In turn, people tend to follow the gaze of more masculinized, dominant faces than more feminized faces (Jones et al., 2010), and people who were judged as more dominant by others at first glance spoke more in subsequent group interactions (rs = .27, .37; Kalma, 1991). Individuals who are less attractive or less dominant may be less able to exert influence over their social group, and poorer treatment from others may then determine a person's social position in a new hierarchy. Although attractiveness and dominance judgments relate to one's behavior, it remains unclear how attractiveness and dominance may be related to individuals' social status, especially in local environments.

Gender Differences in Associations between Appearance and Status

Prior research has indicated that links between attractiveness, dominance, and status may differ by gender. Appearance contains putative cues of genetic fitness and therefore desirability as a mate (Gangestad & Simpson, 2000). Several studies have suggested that women tend to prioritize men's earning capacity (a marker of societal standing), whereas men prioritize women's attractiveness (Buss & Schmitt, 2019; Walter et al., 2020). Moreover, in a recent cross-cultural study of 2,751

individuals across 14 nations, status was more strongly related to dominance (e.g., ability to inflict costs on others) for men than for women (Durkee et al., 2020). Somewhat surprisingly, in a previous series of studies, judgments of attractiveness predicted peer-judgments of status in fraternities and sororities only among men (Anderson et al., 2001). Given that appearances are a basis for judging physical competition and physical threat potential more so in men than women, it is possible that this finding may have been driven by differences in dominance rather than attractiveness. Further research is needed regarding sex differences in the degree to which aspects of appearance relate to judgments of social status. Although we regard our investigation of gender differences as exploratory, given the small number of men in Study 1, we nevertheless explored gender differences in the analyses we present below.

Overview of Studies

In Study 1, we examined whether external raters' judgments of status, attractiveness, and dominance from photographs and videos were related to first-year undergraduate students' self-reported society and university social status. Videos and photographs were used as common forms of media which have been examined separately in previous studies (e.g., Becker et al., 2017; Kraus & Keltner, 2009). Whereas previous studies have compared judgments of status with individuals' status within an established hierarchy (e.g., society, workplace), where pre-existing social ties and other factors beyond appearance could influence one's potential status, we examined how judgments of appearance and status relate to self-reported status among incoming undergraduate students, who are still developing their local social status and for whom first impressions of appearance may consequently be particularly relevant for status. To differentiate how appearance relates to perceptions of socioeconomic status and local status, participants rated their social status in American society with respect to socioeconomic status as well as their social status at their university with respect to prestige.

We tested the magnitude of associations between each rater's judgments of status, attractiveness, and dominance from participants' photographs and videos. By having the same rater judge attractiveness, dominance, and status, we could examine the magnitude of associations between these judgments within raters. We also examined the extent to which raters' judgments of status, attractiveness, and dominance were related to first-year undergraduate students' own self-reported society social status and university social status. Two limitations of Study 1 were that all individuals rated attractiveness, dominance, and status, and that all judgments by perceivers were completed in the same order. Specifically, Study 1 enabled assessment of associations between judgments within an individual (i.e., when a person judges someone as more attractive or more dominant, does that person also judge them as having higher status), but we could not assess whether people who appear more attractive and dominant are also judged to have higher status by distinct raters, without possible order or halo effects. To investigate whether the order of the judgments or a halo effect might drive the associations identified in Study 1 and whether people who are judged as more attractive and dominant are also judged to have higher status by other individuals, we conducted a second study using widely-used, standardized photographs of smiling faces (Study 2a) and neutral faces (Study 2b) from the Chicago Faces Database, each rated by a separate sample of raters.

We hypothesized that students with higher self-reported university social status and higher self-reported society social status would both be judged as being more attractive, more dominant, and having higher status at their university by online raters. Because both local university and society social status are unique but important aspects of status, we tested each form of status separately and predicted that raters would be able to judge each unique form of status from appearance. Finally, given prior evidence that gender may influence the degree that appearance relates to judgments of social status (Anderson et al., 2001), we also explored whether associations between status and attractiveness and dominance differ between male and female first-year undergraduate students.

Study 1 Method

Participants

Participants were 81 first-year undergraduate students (28 men, 52 women, 1 genderqueer; $M_{age} = 18.20$, $SD = 0.50$). Most participants identified as Asian-American (42.0%) and White (35.8%) and as either middle class (31.2%) or upper-middle class (43.0%), and reported having a family income over $75,000 (55.3%; full descriptive information presented in Table 1). We aimed to recruit participants who did not have pre-existing connections to the university that could influence their university social status at the start of the academic year. Therefore, eligible participants: lived in residence halls with randomly assigned roommate(s); were over 100 miles from their high school; and did not participate in university summer programs besides orientation. Because of a separate component of the study, eligible participants also did not use medication that affected immune or psychiatric functioning.

Procedure

Data were collected as part of a larger project that assessed psychophysiology, health, and status motivation (Rahal et al., 2020), and all procedures related to the evaluations of participants' photographs and videos by MTurk workers as part of this project are described below. Participants enrolled in the study within the first four months of the academic year, between September and December. They completed a questionnaire and a laboratory session at baseline and received monthly surveys thereafter for the remainder of the academic year. On average, participants remained in the study for about seven months ($M = 6.82$ months, $SD = 2.40$, range = 1–9 months).

During the laboratory session, experimenters took one smiling facial photograph and one smiling full body photograph of each participant. Smiling images were used to rule out the

Table 1. Frequencies for Demographic Information and Study Variables for Study 1.

Variable	*N*	%
Income		
$15,000 or less	4	4.94
$15,001-$25,000	2	2.47
$25,001-$35,000	6	7.41
$35,001-$50,000	4	4.94
$50,001-$75,000	18	22.22
$75,001-$100,000	11	13.58
$100,001-$150,000	14	17.28
$150,001 +	20	24.69
Did not know	2	2.47
Mother's Education		
High school diploma	14	17.28
GED	1	1.23
Vocational certificate (post high school or GED)	9	11.11
Association degree (junior college)	23	28.40
Bachelor's degree	19	23.46
Master's degree	8	9.88
Doctorate	6	7.41
Did not know	1	1.23
Father's Education		
High School diploma	10	12.35
GED	1	1.23
Vocational certificate (post high school or GED)	1	1.23
Association degree (junior college)	5	6.17
Bachelor's degree	22	27.16
Master's degree	22	27.16
Doctorate	11	13.58
Did not know	9	11.11
Ethnicity		
Asian	34	41.98
White/Caucasian	30	37.04
Hispanic/Latino	5	6.17
Black/African-American	1	1.23
Biracial	10	12.35
Gender		
Male	28	34.57
Female	52	64.20
Genderqueer	1	1.23
Self-Reported Society Social Status ($M = 6.55$, $SD = 1.81$)		
1	1	1.23
2	1	1.23
3	5	6.17
4	7	8.64
5	7	8.64
6	9	11.11
7	26	32.10
8	20	24.69
9	4	4.94
10	1	1.23
Baseline Self-Reported University Social Status ($M = 5.30$, $SD = 2.03$)		
1	3	3.70
2	2	2.47
3	18	22.22
4	6	7.41
5	15	18.52
6	10	12.35
7	14	17.28
8	10	12.35
9	2	2.47
10	1	1.23

possibility that subtle differences in emotion from neutral images may cue status and thereby isolate the roles of attractiveness and dominance as cues (e.g., Bjornsdottir and Rule, 2017). Participants were instructed to take a selfie of themselves in which they were smiling and were left alone for one minute with either their own phone or a phone provided by the experimenter. Then, they were recorded for one minute as they discussed how they balance or plan to balance their academic and personal lives. Participants were seated in a chair in the laboratory and asked to speak directly to the video camera. Their full bodies and faces were included in the recorded video. All 81 participants provided photographs but three declined to provide videos, leaving 78 participants who provided videos.

Photographs were first standardized to 300×400 pixels for body photographs and selfies and 400×300 pixels for facial photographs, and videos were condensed to the first 10 s of participants' responses. Next, the photographs and videos were rated by 1,000 adults (520 men, 475 women, five genderqueer; $M_{age} = 34.85$, $SD = 11.32$; 77.0% Caucasian) on Amazon Mechanical Turk using a Qualtrics survey. Raters were able to view the stimuli as long as they wanted. They then responded to the items, "How physically attractive is this person?" and, "How much does this person appear as though s/he could get what s/he wanted (i.e., dominant)?" on scale from 1 = *extremely [unattractive/non-dominant]* to 9 = *extremely [attractive/dominant]*. Raters were asked to "Imagine a 10-rung ladder representing where undergraduate students 'rank'" and to mark the rung where that person stood.

To prevent fatigue, each rater saw only a subset of one type of stimulus: facial photographs, full body photographs, selfies, or video clips. We randomly assigned stimuli to three blocks of each type of photograph (i.e., facial, full body, selfie) and six blocks of video clips, with two randomly generated orders for each block, generating 30 blocks of stimuli. On average, raters judged 27 photographs ($M = 26.7$, $SD = 3.5$) or 13 video clips ($SD = 2$), and each photograph and each video clip were judged by 70 raters ($SD = 3$) and 64 raters ($SD = 2$), respectively. Additional information and all study measures can be found at https://osf.io/xrkma/?view_only=5213b2d6986743369ae0d98b882d2cd7.

Measures

Self-Reported University Social Status. Participants completed the MacArthur Scale of Subjective Social Status (Adler et al., 2000; Goodman et al., 2001). This scale was designed to examine

individuals' perception of their place in the social hierarchy and includes two items in order to account for standing with respect to social position in a local context and socioeconomic status. For this study, one item was used to examine participants' social position at their university. Participants completed this item at baseline and in every monthly questionnaire. They viewed a 10-rung ladder with the instructions, "Imagine a 10-rung ladder representing where people "rank" at UCLA. At the top of the ladder are UCLA students who are most respected, esteemed, and admired. At the bottom of the ladder are those who are least respected, esteemed, and admired. Mark your response on the scale below that best represents where you think you stand on the ladder." Higher scores represented higher self-reported social status.

Similar prompts have been used in samples of children, adolescents, and young adults (e.g., Castro et al., 2020; Huynh & Chiang, 2018; Rahal et al., 2020). It was developed to be analogous to the well-validated prompt regarding adults' local status relative to others in their community. In the same way that self-reported society social status is intended to measure a person's perception of standing rather than to be a perfect correlate of income and education, self-reports of school or university status are intended to examine a person's perception of their standing relative to other students. The prompt anchors this rating by having participants consider respect and admiration as constructs which may be relevant to students, but enables them to consider other factors that may shape their relative standing, thereby providing an overall rating of how they personally view their standing relative to others. Versions of this prompt have been tested in diverse populations (e.g., Goodman et al., 2001, 2003; Karvonen & Rahkonen, 2011; Lemeshow et al., 2008), and a meta-analysis indicated that both self-reported social status in school and in society had comparable effects on health (Quon & McGrath, 2014).

Self-Reported Society Social Status. At baseline, participants completed a similar scale with the following instructions: "Imagine a 10-rung ladder representing where people stand in society. At the top of the ladder are the people who are the best off, those who have the most money, most education, and best jobs. At the bottom are the people who are the worst off, those who have the least money, least education, and worst jobs or no job. Mark your response on the scale below that best represents where you think your family stands on the ladder." This item has been consistently associated with health outcomes and is a well-validated measure of status, showing significant links with objective measures of socioeconomic status such as income and education (Goodman et al., 2007; Quon & McGrath, 2014).

Covariates. Raters self-reported their age and gender. As a proxy for socioeconomic status, participants reported their family's annual income bracket and parental education. Parental education was averaged across participants' reports of their mother's and father's highest level of education when both parents' information was available.

Data Analysis. First, because judgments were collected based on four different media (i.e., facial photographs, body photographs, selfies, and videos), an exploratory factor analysis was used to determine whether judgments should be aggregated across media or whether each medium should be analyzed separately. Next, hypotheses were tested using multilevel models with different judgments nested within a participant. There were 21,376 observations in the analysis, with an average of 267 judgments for each participant across all four types of media. Judgments were dummy-coded with respect to the type of medium that was judged. Videos are most distinct from the other types of media and were therefore selected as the reference group.

Judgments of attractiveness, dominance, and status at their university were variables at Level 1 because participants were judged by multiple raters. Self-reported university social status and self-reported society social status were variables at Level 2 of the multilevel models because participants each reported social status at baseline. Importantly, whereas self-reported society social status was only collected once at baseline, participants reported university social status each month throughout the academic year to account for how their university social status may vary as they transition to college. To calculate a better overall estimate of undergraduate students' self-reported university social status, a random-intercept multilevel model was tested with months nested within each participant. Each participant had a different constant for their self-reported university social status, which aggregated all of their reports of university social status across the academic year. Importantly, participants could have enrolled in the study at any of the first four months of the year, and participants who enrolled in later months may have had more time to adjust to college and to develop higher status. In order to account for differences in starting month, we identified their status at the start of the academic year by extracting the intercept for each participant ($0 = \text{September}$, $1 = \text{October}$ … $9 = \text{June}$). Models included a random effect of time, such that the effect of time could vary across participants. This empirical Bayes estimate was tested as a Level 2 variable in subsequent models, and this estimate was highly correlated with participants' first self-reported university social status at study entry, $r(79) = .91$, $p < .001$. All judgments and reports of university and self-reported society social status were treated as continuous variables across all analyses.

First, we estimated multilevel models to test whether participants' self-reported social status corresponded to the judgments of online raters based on media. We tested whether participants' self-reported university social status and self-reported society social status, examined in separate models, predicted status judgments, as shown in Equation 1. Because different raters judged each photograph or video, raters' age and gender were included as covariates at Level 1 in adjusted models. The type of medium (i.e., facial photographs, body photographs, selfies, and videos) was also controlled at Level 1.

Equation 1:

$$L1: \widehat{Rating}_{ij} = \beta_{0j} + \beta_{1j}(Rater\ Age) + \beta_{2j}(Rater\ Gender)$$

$$L2: \beta_{0j} = \gamma_{00} + \gamma_{01}(Self-Reported\ University/\ Society\ Social\ Status) + \gamma_{02}(Medium) + u_{0j}$$

Next, we estimated models which predicted judgments of status from participants' attractiveness and dominance judgments to determine whether attractiveness and dominance were cues related to raters' judgments of participants' status at their university, as shown in Equation 2.

Equation 2:

$$L1: \widehat{Status\ rating}_{ij} = \beta_{0j} + \beta_{1j}(Attractiveness/Dominance\ Rating) + \beta_{2j}(Rater\ Age) + \beta_{3j}(Rater\ Gender)$$

$$L2: \beta_{0j} = \gamma_{00} + \gamma_{01}(Gender) + \gamma_{02}(Medium) + u_{0j}\ \beta_{1j} = \gamma_{10} + \gamma_{11}(Gender) + u_{1j}$$

Finally, we assessed whether cues were related to participants' self-reported society social status. Two-level multilevel models were used with judgments nested within individuals. Self-reported university social status was tested as a predictor of attractiveness and dominance judgments, and analyses were repeated testing self-reported society social status as a predictor.

Given that prior work has suggested that attractiveness is more related to status in males than in females (Anderson et al., 2001), we conducted exploratory analyses to test for differences in the strength of associations by participants' gender across all models. Models included interactions between participant gender and primary predictors. Predictors at Level 2 (i.e., participants' self-reported university social status and self-reported society social status) were grand-mean centered, and predictors at Level 1 (i.e., judgments of attractiveness and dominance) were centered within a participant. Gender was dummy-coded (0 = male, 1 = female). First, models were tested unadjusted for covariates. Then, models were tested after adjusting for raters' age and gender to assess robustness of results. Finally, when participants' self-reported social status was a predictor, participants' family income and parents' education—two indicators of socioeconomic status that are consistently moderately associated with self-reported social status (e.g., Adler et al., 2000)—were included as covariates. Adjusting for family income and parents' education provided a rigorous test of whether associations were related to non-financial aspects of status, as has been tested in previous studies (e.g., Adler et al., 2000; Zell et al., 2018).

Study 1 Results

Participants' self-reported society social status was moderately related to their self-reported university social status, $r(79) = .38$, $p < .001$ (Table S1). First, exploratory factor analyses tested whether judgments based on the four different media loaded onto a single factor. Separate analyses were conducted for participants' average judgments for attractiveness, dominance, and status at their university, and each type of judgment was highly related across media (Figures S1-S3). Results of the exploratory factor analyses suggested that all judgments loaded onto a single factor (Tables S2-S3). Therefore, all media were analyzed together in one model, controlling for the specific type of medium. Descriptive statistics for judgments of each medium are presented in Table 2.

Correspondence Between Self-Reported Social Status and Status Judgments

Models tested whether raters' judgments of status at their university were related to participants' status at their university and in society. Participants with higher self-reported university social status were also judged to have higher status by external raters, $B = 0.13$, $SE = 0.04$, $p < .001$, 95% Confidence Interval (CI) [0.06, 0.21], and this association did not vary by gender, $p = .4$. We also tested associations between status judgments and self-reported society social status. Results suggested that associations between self-reported society social status and status judgments varied by gender as indicated by the Gender × Self-Reported Society Social Status interaction, $B = -0.16$, $SE = 0.08$, $p = .036$, 95% CI [-0.31, −0.01]. Male participants with higher self-reported society social status were also judged to have higher status at their university, and no association was found for female participants (Figure 1a). Results remained significant when adjusting for characteristics of raters, although the interaction between gender and self-reported society social status was nonsignificant after controlling for participants' family income and parents' education, $B = -0.14$, $SE = 0.08$, $p = .085$, 95% CI [-0.30, 0.02] (Tables S4-S5).

Associations Between Observed Cues and Status Judgments

Next, attractiveness and dominance judgments were assessed as cues of status judgments. As hypothesized, participants were judged as having higher status at their university by external raters when they were judged as more attractive, $B = 0.49$, $SE = 0.02$, $p < .001$, 95% CI [0.45, .54], and more dominant, $B = 0.52$, $SE = 0.02$, $p < .001$, 95% CI [0.48, 0.57]. These associations did not vary with gender, $ps > .10$, and these results were maintained while controlling for raters' gender and age (Tables S6-S7).

Associations Between Self-Reported Social Status and Observed Cues

Lastly, models examined whether raters' judgments of attractiveness and dominance related to participants' self-reported social status. Participants with higher self-reported university

Table 2. Descriptive Statistics for Judgments Across Studies.

Variable		*N*	*M*	*SD*	Min	Max	ICC
Judgments based on Facial Photographs in Study 1	Attractiveness	5,007	5.14	1.68	1	9	.32
	Dominances	5,000	4.87	1.62	1	9	.21
	Status	5,007	5.54	1.78	1	10	.19
Judgments based on Body Photographs in Study 1	Attractiveness	5,680	5.20	1.66	1	9	.20
	Dominances	5,676	4.86	1.66	1	9	.14
	Status	5,609	5.50	1.78	1	10	.12
Judgments based on Selfie in Study 1	Attractiveness	5,494	5.26	1.64	1	9	.32
	Dominances	5,420	4.90	1.69	1	9	.21
	Status	5,498	5.63	1.83	1	10	.19
Judgments based on Video in Study 1	Attractiveness	5,453	5.14	1.56	1	9	.30
	Dominances	5,446	4.80	1.64	1	9	.20
	Status	5,456	5.39	1.73	1	10	.17
Judgments based on Smiling Facial Photographs in Study 2a	Attractiveness	11,482	4.71	1.68	1	9	.32
	Dominances	11,482	5.10	1.68	1	9	.15
	Status	11,482	5.92	1.96	1	10	.18
First Judgments based on Smiling Facial Photographs in Study 2a	Attractiveness	3,800	4.68	1.72	1	9	.38
	Dominances	3,758	5.11	1.71	1	9	.16
	Status	3,804	5.95	2.08	1	10	.18
Judgments based on Neutral Facial Photographs in Study 2b	Attractiveness	15,421	4.65	1.67	1	9	.12
	Dominances	15,424	5.12	1.69	1	9	.12
	Status	15,423	5.76	1.98	1	10	.24
First Judgments based on Neutral Facial Photographs in Study 2b	Attractiveness	5,081	4.41	1.70	1	9	.26
	Dominances	5,183	5.15	1.71	1	9	.12
	Status	5,159	6.01	2.06	1	10	.11

Note: ICC = Intraclass correlation coefficient. For Studies 2a and 2b, raters provided ratings for each photograph, and each rater was assigned to consistently rate one criterion first, and statistics are reported for all ratings and then for ratings from raters who rated that criterion first.

social status were judged as being more attractive, $B = 0.18$, $SE = 0.05$, $p < .001$, 95% CI [0.08, 0.27], and more dominant, $B = 0.12$, $SE = 0.04$, $p = .007$, 95% CI [0.03, 0.20] (Table 3). There were no gender differences in these associations, ps > .10. In contrast, there were gender differences in the degree to which attractiveness, $B = -0.23$, $SE = 0.10$, $p = .021$, 95% CI [-0.43, −0.03], and dominance, $B = -0.23$, $SE = 0.10$, $p = .023$, 95% CI [-0.39, −0.06], related to self-reported society social status. It is important to note that, given the low number of male participants in the sample, these analyses are exploratory and results must be interpreted with caution. Male—but not female—participants with higher self-reported society social status were judged as more attractive and more dominant (Figure 1b, c). These results were generally robust to the inclusion of raters' gender and age and participants' family income and parents' education as covariates (Table S8-S9).

Study 2

In Study 1, raters consistently judged the attractiveness, dominance, and status of each photograph or video in that order. It is possible that observers' judgments of dominance and status were biased by their judgments of attractiveness, as the first criterion that they evaluated. To address this potential order effect, we collected additional ratings using standardized stimuli from the Chicago Faces Database, which were similar to the facial photographs in Study 1 in age and smiling expression (Ma et al., 2015). Only a subset of stimuli included smiling expressions. Therefore, we conducted two studies: one using 40 smiling photographs that appear younger than age 25 based on norming data from the Chicago Faces Database (Study 2a), and another using 100 neutral photographs that appear younger than age 24 based on norming data including 50 male and 50 female faces (Study 2b).

To address order effects, participants were randomly assigned to consistently judge either attractiveness, dominance, or status first for each photograph. They then judged the remaining two characteristics in random order for each other photograph. Multilevel models with ratings nested within photographs tested whether mean levels of attractiveness, dominance, and status varied by whether that criterion was judged first. We also tested associations between attractiveness, dominance, and status and examined whether the magnitude of associations replicated those of Study 1, controlling for item order. Attractiveness and dominance were centered at the mean of the photograph, as done in Study 1. Finally, to fully rule out the possibility that associations may be inflated by having the same rater judge multiple criteria per photograph (i.e., subsequent judgments for a given photograph may be influenced by the first judgment), we conducted a separate analysis retaining only the first judgment that participants made for each photograph; attractiveness judgments were only used from participants who consistently judged

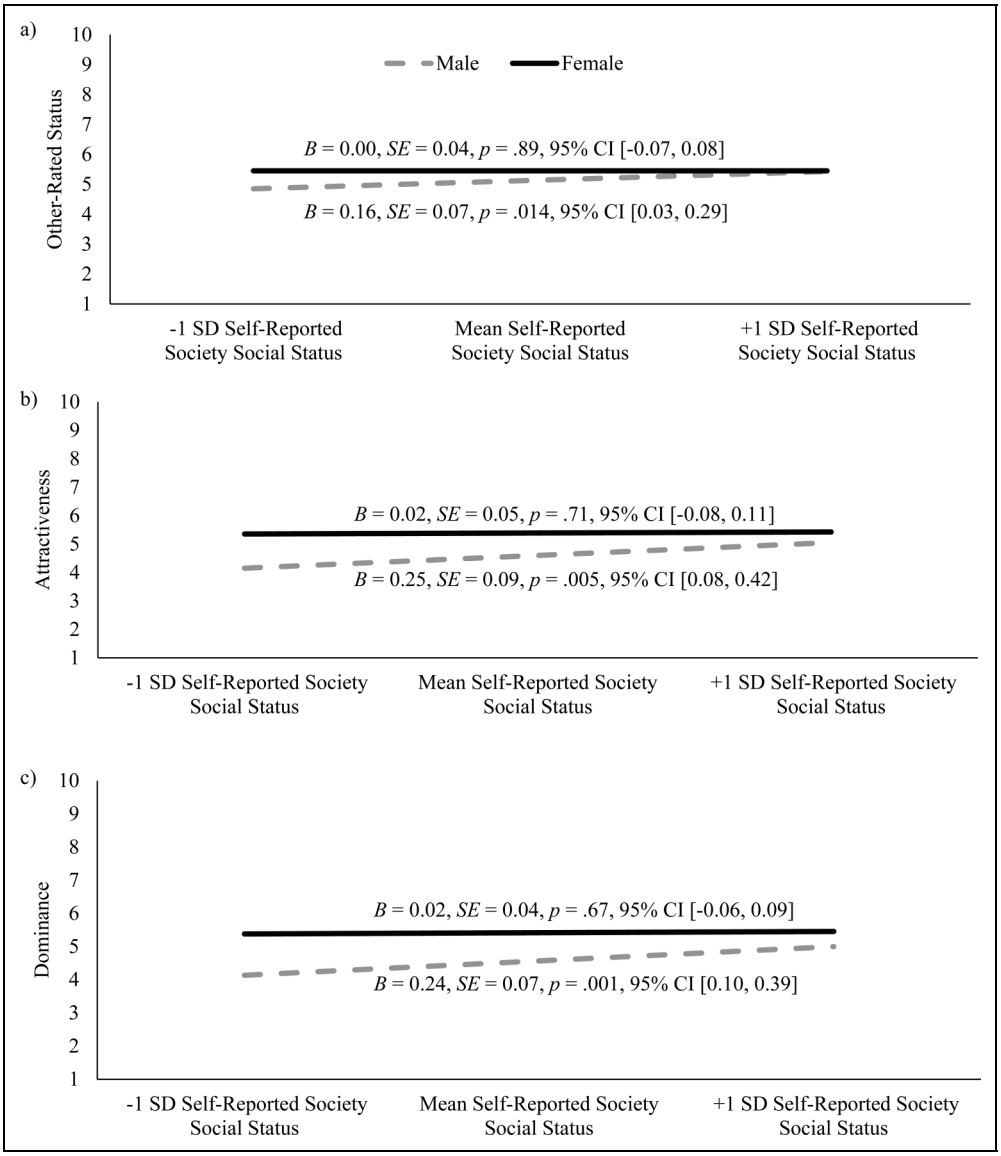

Figure 1. Judgments of other-rated Status (a), attractiveness (b), and dominance (c) as a function of self-reported society social Status and gender in study 1. *Note*: CI = Confidence Interval. SD = Standard Deviations. −1 SD represents one standard deviation below the mean and + 1 SD represents on standard deviation above the mean.

attractiveness first, and likewise for dominance and status. We then analyzed whether judgments of attractiveness and dominance were related to observer-rated status. These analyses were tested for both the smiling faces and the neutral faces. Because there were 50 male and 50 female neutral faces in Study 2b, we also tested moderation of all associations by gender for neutral faces.

Study 2a: Smiling Photographs from the Chicago Faces Database

Participants and Procedures

Participants included 288 undergraduate students (M_{age} = 20.70, SD = 2.50; 80.0% female; 17.4% White, 46.8% Asian, 15.6% Latino, 10.6% biracial). Participants completed a survey in which they judged a series of 40 faces with open mouth smiles from the Chicago Faces Database from Black and White adults (17 male faces, 23 female faces). In images from this database, people tended to have their heads positioned straight vertically and facing directly towards the camera. Facial images were also resized so that facial features of comparable size across images. Images consistently had a white background, and participants wore a grey t-shirt. Because Study 1 used photographs of incoming undergraduate students, we limited the photographs to those of participants who were estimated to appear age 25 and younger in the original validation study of these images. Faces in the survey were presented in random order, and participants were assigned to rate one criterion first consistently for

Table 3. Attractiveness and Dominance Judgments as a Function of Self-Reported University Social Status in Study 1.

	Attractiveness						Dominance					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Fixed Effects												
Constant	4.60***	0.13	4.52***	0.13	4.50***	0.13	4.61***	0.11	4.52***	0.11	4.54***	0.11
Female	0.83***	0.16	0.83***	0.16	0.79***	0.16	0.27	0.14	0.26	0.14	0.26	0.14
Self-Reported University Social Status	0.18***	0.05	0.18***	0.05	0.18**	0.06	0.12**	0.04	0.12**	0.04	0.11*	0.05
Facial Photograph	0.00	0.03	0.00	0.03	−0.01	0.03	0.09**	0.03	0.09**	0.03	0.04	0.03
Body Photograph	0.06*	0.03	0.07**	0.03	0.10**	0.03	0.06*	0.03	0.09**	0.03	0.06	0.03
Selfie Photograph	0.13***	0.03	0.13***	0.03	0.13***	0.03	0.13***	0.03	0.13***	0.03	0.09**	0.03
Rater Age	—	—	0.02***	0.00	0.02***	0.00	—	—	0.01***	0.00	0.01***	0.00
Rater Gender (Female)	—	—	0.18***	0.02	0.18***	0.02	—	—	0.18***	0.02	0.18***	0.02
Rater Gender (Other)	—	—	0.43**	0.15	0.41**	0.15	—	—	0.53***	0.16	0.51**	0.16
Income	—	—	—	—	0.09	0.05	—	—	—	—	0.10*	0.04
Parents' Education	—	—	—	—	−0.06	0.05	—	—	—	—	−0.03	0.04
Random Effects												
Constant	0.41	0.07	0.42	0.07	0.41	0.07	0.05	0.32	0.05	0.3	0.05	0.05
Residual	2.07	0.02	2.01	0.02	2.01	0.02	0.02	2.33	0.02	2.33	0.02	0.02
ICC	0.17	—	0.17	—	0.17	—	0.71	—	0.71	—	0.71	—

Note: Results are presented unadjusted (Model 1), adjusted for rater characteristics (Model 2), and adjusted for participant characteristics (Model 3). Female was dummy-coded at Level 2; 0 = male, 1 = female. Self-Reported University Social Status, Income, and Parents' Education were grand-mean centered at Level 2. Rater Age was grand-mean centered at Level 1. Rater Gender (Male) and Rater Gender (Other) were dummy-coded at Level 1 with female (the largest proportion of raters) as the reference group; female = 0. Facial Photograph, Body Photograph, and Selfie Photograph were dummy-coded at Level 1 with videos as the reference group; video = 0. ICC = Intraclass correlation coefficient. *$p < .05$, **$p < .01$, ***$p < .001$.

every photograph (i.e., consistently rate attractiveness, dominance, or status first for all photographs, and rate other characteristics in random order). There were no differences across survey orders with respect to participant age, race, year in school, or sex, all ps > .05. The online survey was similar to the original survey in all other respects (i.e., participants must manually click to proceed to the next photograph).

Results. First, multilevel models predicted judgments of attractiveness, dominance, and status with participants' ratings nested within photographs. Participants were dummy-coded by order, with respect to whether they rated each criterion first. There was no average effect of rating the criterion first versus after rating another criterion, as all dummy-codes of order were nonsignificant, ps > .40. This suggested that ratings were not consistently biased by order effects.

Second, attractiveness and dominance were moderately related. As observed in Study 1, photographs that were rated as more attractive, $B = 0.71$, $SE = 0.02$, $p < .001$, 95% CI [0.67, 0.75], and dominant, $B = 0.58$, $SE = 0.02$, $p < .001$, 95% CI [0.55, 0.62], also tended to be rated as having higher status (Table S10). Associations did not vary by the order of the judgments, ps > .05.

Finally, we calculated an average of judgments of each criterion (i.e., attractiveness, dominance, status) using only judgments from when that criterion was rated first. Attractiveness judgments were retained from participants who consistently rated attractiveness first ($n = 95$), and this was similarly done for dominance ($n = 94$) and status ($n = 95$). Whereas previous analyses tested associations between a rater's judgments of attractiveness, dominance, and status, this analysis compared average judgments of attractiveness and dominance with judgments of status, as evaluated by separate raters. We tested correlations between attractiveness, dominance, and status, and found that photographs that were on average judged as more attractive were rated as being more dominant, $r(38) = .85$, 95% CI [.73, .92], $p < .001$, and having higher status, $r(38) = .95$, 95% CI [.91, .97], $p < .001$. We also found that photographs that were on average judged as more dominant were rated as having higher status, $r(38) = .90$, 95% CI [.82, .95], $p < .001$. Taken together, results did not suggest that associations between attractiveness, dominance, and status were driven by order effects.

Study 2b: Neutral Photographs from the Chicago Faces Database

Participants and Procedures

Participants included 304 undergraduate students ($M_{age} = 20.72$, $SD = 2.62$; 70.4% female; 21.6% White, 41.3% Asian, 22.3% Latino, 6.6% biracial). Participants viewed 50 of 100 possible faces with neutral expressions (25 male and 25 female faces) presented in random order, and they were

randomly assigned to rate one criterion first consistently for every photo. Survey order was not related to participant age, race, or sex, *p*s > .40. A higher number of faces were used in this study because more participants provided neutral photographs than open mouth smiling photographs in the Chicago Faces Database. Therefore, we tested whether the magnitude of associations between judgments of status and appearance differ by photograph gender.

Results. Again, multilevel models tested order effects on judgments of attractiveness, dominance, and status. Although no order effect emerged for dominance, $B = 0.05$, $SE = 0.08$, $p = .58$, 95% CI [-0.12, 0.22], significant effects emerged for attractiveness and status judgments. Specifically, on average neutral photographs were judged as less attractive when attractiveness was rated first, $B = -0.35$, $SE = 0.11$, $p = .001$, 95% CI [-0.56, −0.13], and as having higher status when status was rated first, $B = 0.38$, $SE = 0.13$, $p = .009$, 95% CI [0.13, 0.64]. Models then included Order × Photograph Gender interactions to determine whether the strength of order effects differed between photographs of male versus female faces. All interaction effects were non-significant, *p*s > .40.

Next, multilevel models examined how relative differences in judgments of attractiveness and dominance related to observer-rated status. As observed for smiling photographs, when participants rated neutral photographs as more attractive and more dominant, they tended to also judge these photographs as having higher status; $B = 0.65$, $SE = 0.02$, $p < .001$, 95% CI [0.61, 0.69] for attractiveness, and $B = 0.47$, $SE = 0.02$, $p < .001$, 95% CI [0.43, 0.51] for dominance, respectively (Table S11). Again, we tested whether the strength of associations varied by order of judgments, and as observed in Study 2a these effects were nonsignificant, *p*s > .40. Therefore, although order affected judgments of attractiveness and status, order did not appear to affect the association between attractiveness and status for these photographs.

We also examined moderation by gender. We found that the association between status and attractiveness did not differ by gender, $p = .68$. In contrast to the results for smiling photographs, the magnitude of the association between dominance and status judgments for neutral photographs differed by gender, $B = 0.09$, $SE = 0.01$, $p < .001$, 95% CI [0.06, 0.11], such that it was significant for all photographs but was slightly stronger for photographs of males, $B = 0.51$, $SE = .02$, $p < .001$, 95% CI [0.47, 0.56], than for photographs of females, $B = 0.43$, $SE = 0.02$, $p < .001$, 95% CI [0.39, 0.47].

Finally, we examined correlations between attractiveness, dominance, and status and the extent to which associations varied between photographs of males and females, using only the ratings from when each criterion was rated first. Correlations indicated that neutral photographs that were judged as more attractive and as more dominant both tended to be rated as having higher status; $r(98) = .81$, 95% CI [.74, .87], and $r(98) = .58$, 95% CI [.43, .69], respectively, *p*s <.001. Photographs that were judged as more attractive were also judged as more dominant, $r(98) = .63$, 95% CI [.50, .74], $p < .001$. We used regression models to test whether associations between attractiveness and dominance judgments with status judgments varied by gender. Both the Attractiveness × Gender and Dominance × Gender interactions were non-significant, *p*s >.5 (Table S12). Overall, associations between attractiveness, dominance, and status for neutral faces were maintained after accounting for potential order and halo effects.

Discussion

People need to continually judge the status of other people to navigate important social problems that would have affected the survival and reproductive success of our ancestors. Indeed, people can reliably do so based on first impressions and visual media (Becker et al., 2017; Kraus & Keltner, 2009), although it remains unclear what appearance cues individuals use to judge status and what aspects of social status are judged. To address these questions, we investigated whether external raters' judgments of students' social status at their university were related to students' own reports of social status at their university and in society more generally.

We first examined whether raters' judgments of dominance and attractiveness were related to judgments of status across three sets of stimuli—undergraduate students' photographs and videos in Study 1 and smiling and neutral photographs of young adults from the Chicago Faces Database in Studies 2a and 2b—and were related to undergraduate students' self-reported social status. Judgments of higher attractiveness and higher dominance corresponded to judgments of higher status across all three sets of stimuli. Importantly, associations between observer-rated and self-reported social status differed by social context, as male and female participants with higher self-reported university social status were judged as more attractive, more dominant, and having higher status at their university. In turn, exploratory analyses suggested that male but not female participants with higher self-reported society social status were judged as more attractive, more dominant, and having higher status at their university. These results suggest that people may be able to judge self-reported university status from appearance, and potentially self-reported society social status for male undergraduate students. Taken together, attractiveness and dominance may be visual cues that are related to observer-rated social status and may influence people's social status in daily life.

Judgments of Status and University Students' Self-Reported Social Status

Raters' judgments of participants' status at their university corresponded modestly to participants' own self-reported university social status and male participants' self-reported society social status. Social status can determine safety and resource allocation, and our results are consistent with other research suggesting that humans judge the status of others based on appearances (Becker et al., 2017; Kraus & Keltner, 2009; Mast & Hall, 2004). Importantly, photographs and videos can provide different types of information regarding status (e.g.,

facial features vs. pitch; Cheng et al., 2016; Witkower et al., 2020). Whereas prior studies assessed either photographs or videos, this study employed both videos and different types of photographs to reliably measure participants' judgments of status, and exploratory factor analyses suggested that judgments were concordant across media.

However, differences did emerge with respect to the facet of social status. We examined self-reported society social status and self-reported university social status as separate indicators of status because young adults often have a sense of their family's socioeconomic status and develop their own status in their social groups relative to their peers (e.g., Rahal et al., 2020). In this study, self-reported society social status and self-reported university social status were only moderately related, in line with prior studies (e.g., Adler et al., 2000; Finkelstein et al., 2006; Rahal et al., 2020). High social status in both contexts has been found to relate to better health (e.g., Quon & McGrath, 2014; Rahal et al., 2020). Although distinct, both facets of status may be important for well-being because of their implications for resource access; high subjective society social status may reflect high perceived access to material resources, and high subjective university social status may reflect high perceived access to interpersonal resources and social influence. Because of these different implications, we examined whether observer-rated status and aspects of appearance were related to both self-reported society social status and self-reported university social status.

Although our ability to examine gender differences was limited by the small number of men in Study 1, exploratory analyses suggested that self-reported society status was related to judgments of status from appearance for male but not female participants. In the animal kingdom, males are more likely to be involved in face-to-face competition for resources than females (Benenson & Abadzi, 2020). Visual signs of high status (e.g., musculature, large size) have been found to reduce conflict for resources in animal models (e.g., Archie et al., 2012; Setchell & Wickings, 2005) and to promote social resources and deference from peers in humans (e.g., Foulsham et al., 2010; Holland et al., 2017; Sell et al., 2014).

Given the important consequences of men's social status for being selected as a mate (e.g., Hopcroft, 2006; Weeden et al., 2006), observers might be particularly adept at determining men's social status from appearance. In addition, the ability to identify high status in males can help to avoid threatening or aggressive encounters (Lieberz et al., 2017; Stirrat et al., 2012; Třebický et al., 2013). It is possible that males' status among peers is related to their physical strength (e.g., Clarke & Clarke, 1961), and males from high socioeconomic status backgrounds often have access to strength-promoting resources (e.g., nutrition, fitness centers), which can be detected in appearance (Sell et al., 2009). In sum, there are several theoretical reasons to suspect that men's status will be more readily discerned from appearance.

Attractiveness, Dominance, and Status Judgments

Furthermore, people who were judged as more attractive and dominant were also judged as having higher status in Study 1, Study 2a, and Study 2b. Attractiveness and dominance may be visual cues that individuals use to judge the social status of others because throughout evolutionary history more attractive and dominant individuals were favored in social groups. Attractiveness could serve as a cue of health, benefitting all interpersonal relationships, as well as a cue of fertility for mates (Gangestad & Scheyd, 2005). Likewise, appearing more dominant is strongly related to greater physical strength and success in physical competition in men (e.g., Kordsmeyer et al., 2019). Results from Study 2b suggested that dominance was slightly more related to observer-rated status for male neutral faces than for female neutral faces. This finding is in line with prior research suggesting that dominance may be more related to status for males than for females (Durkee et al., 2020). In the ancestral past, dominance may be particularly important for males for securing resources and attaining mates (Smuts, 1985). Interestingly, attractiveness and dominance are related and may be cued by similar features; for instance, masculine facial features can increase perceptions of dominance and to a lesser extent perceptions of attractiveness (Boothroyd et al., 2007; DeBruine, 2014; Main et al., 2009). Therefore, both attractiveness and dominance may relate to status in similar ways. When evaluating visible cues of social status, future research should continue to disaggregate attractiveness and dominance and identify the specific features that cue each respectively, such as body proportions for attractiveness and facial masculinity, chest-to-hip ratio, and upper arm and forearm girth for dominance (e.g., Fan et al., 2004; Kordsmeyer et al., 2019; Quist et al., 2011).

Attractiveness, Dominance, and Self-Reported Social Status

Lastly, attractiveness and dominance were related to higher self-reported university social status for both males and females and higher self-reported society social status for males. Previous research suggests that more attractive people are viewed more favorably in modern society (e.g., as more competent, well-adjusted; Langlois et al., 2000). In turn, dominance represents a pathway to achieving status, and simply appearing or sounding dominant can lead to greater influence in group interactions (Cheng et al., 2013). More attractive and dominant people may be treated differently by peers and may consequently be more adept at developing social relationships and status in a novel setting.

Just as status judgments were related to self-reported society social status only for male participants, judgments of attractiveness and dominance were related to self-reported society social status for male participants and not for female participants. These findings build upon prior research suggesting that attractiveness is related to social status in certain contexts. Interestingly, whereas we observed that attractiveness was uniquely related to self-reported society social status but not self-reported university social status among men, a previous study found that attractiveness was related to higher social status in their Greek life organization, measured with respect

to how well-known individuals were and the number of positions and offices individuals held, among fraternity men but not sorority women (Anderson et al., 2001). Although self-reported society and local status tend to be modestly related, that study did not include measures of both society and university status for us to identify whether attractiveness may have more strongly related to society versus university status for fraternity members.

Appearance may be especially tied to males' status in society because stronger and more dominant males in the ancestral past could provide safety and access to resources for their mates, as seen in other primates (Smuts, 1985). For instance, primates tend to form social hierarchies with respect to dominance, such that the primates that are most dominant tend to have the highest social rank (e.g., De Waal, 1986; Shively, 1985). Primates with higher rank tend to show greater physical health and access to mates and food resources (Alberts et al., 2003; Archie et al., 2012), and similar associations have been found among other social species in the animal kingdom (e.g., Sapolsky, 2004). Additionally, males tend to engage in more face-to-face competition, which can involve direct conflict, whereas females engage in more indirect forms of competition (Benenson & Abadzi, 2020). Therefore, status in society may be more strongly related to attractiveness and dominance for males relative to females. Alternatively, society social status may relate to other aspects of appearance for women. Women tend to spend a larger percentage of time and money on their appearance than men (Rhode, 2010), and more objective aspects of appearance including jewelry and makeup may better relate to society social status than subjective ratings of attractiveness or dominance, which may vary by social norms and preferences. Future research should examine what observable traits are related to society versus university status for males and females.

Limitations

Several limitations of this study should be noted. First, although the stimuli in Study 1 were rigorously rated by 1,000 raters, future studies should use a larger sample and, specifically, a greater number of male participants. Relatedly, using raters with ages and ethnicities more similar to those of participants could help reduce the impact of biases by age and ethnicity and thereby increase the validity of judgments. Utilizing raters with ages and ethnicities more similar to the university population—the hierarchy of students among whom participants are actively navigating their status—could improve external validity. Importantly, participants rated university and self-reported society social status whereas raters were only asked to rate participants' university status. Although judgments of participants' university status corresponded to males' self-reported society social status, it is possible that associations may have emerged for females if raters had separately judged both participants' status at their university and their status in society when evaluating photographs and videos. Also, by having the same participants rate attractiveness, dominance, and status for each stimulus, there is the potential for a halo effect or overall bias such that we may overestimate associations between attractiveness, dominance, and status. Studies 2a and 2b provide some evidence against detrimental effects and biases, as we find very strong associations between judgments of attractiveness, dominance, and status when evaluated by different raters.

Finally, the study was limited by its assessment of social status and the prompt that raters evaluated for each photograph or video. Although we used a validated measure of self-reported social status for this age group, social status is a multi-faceted construct, which can involve both socioeconomic status (i.e., access to financial resources) and local status (i.e., relative degree of respect, influence, and prominence relative to other people). Future studies may increase consistency in raters' judgments of status per stimulus by providing raters with a more detailed prompt regarding the evaluation of social status. Further research is needed to identify the dimensions that this scale is specifically assessing. For instance, prior work has adjusted the prompt associated with this scale to examine standing with respect to specific criteria, such as scholastic ability and peer standing (Sweeting et al., 2011). Future studies would greatly benefit from identifying the specific dimensions that participants are evaluating, as well as the psychological constructs (e.g., social competency) that measures of self-reported social status may be tapping into. Study findings could be better interpreted if online raters were asked to evaluate specific aspects of social status, so that we can have a better understanding of what constructs these observable cues are mapping onto. Future studies should endeavor to compare participants' self-reports and observers' ratings of these traits. Furthermore, it is possible that higher local status involves a constellation of personality traits (e.g., extraversion, sociability, leadership; Cheng et al., 2010), and future studies should better identify what traits this measure actually maps onto across contexts and diverse populations.

Conclusions

Prior research has found that aspects of social status can be judged solely from appearance. The present study extends this work by investigating whether online raters could reliably judge the social status of first-year undergraduate students as they transitioned to college—an environment with no previously established hierarchy—solely based on appearance. Results indicated that aspects of self-reported social status—including status among university peers—can be judged solely by appearance, although men and women may be judged differently. Judgments of status may be based in part on physical cues (i.e., attractiveness, dominance) and correspond to facets of individuals' self-reported social status. Attractiveness and dominance may influence how people are treated and thereby shape self-reported social status. Further research should investigate whether judgments of appearance relate to how people are treated by others and the means by which appearance might directly influences status.

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Conflicts of Interest

The authors report no conflicts of interest.

Declaration of Conflicting Interests

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Supplemental material

Supplemental material for this article is available online.

References

Adler N. E., Epel E. S., Castellazzo G., & Ickovics J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, white women. *Health Psychology*, *19*(6), 586–592. https://doi.org/10.1037//0278-6133.19.6.586

Alberts S. C., Watts H. E., & Altmann J. (2003). Queuing and queue-jumping: Long-term patterns of reproductive skew in male savannah baboons, Papio cynocephalus. *Animal Behaviour*, *65*(4), 821–840. https://doi.org/10.1006/anbe.2003.2106

Anderson C., Hildreth J. A. D., & Howland L. (2015). Is the desire for status a fundamental human motive? A review of the empirical literature. *Psychological Bulletin*, *141*(3), 574–601. https://doi.org/10.1037/a0038781

Anderson C., John O. P., Keltner D., & Kring A. M. (2001). Who attains social status? Effects of personality and physical attractiveness in social groups. *Journal of Personality & Social Psychology*, *81*(1), 116–132. https://doi.org/10.1037/0022-3514.81.1.116

Anderson C., Kraus M. W., Galinsky A. D., & Keltner D. (2012). The local-ladder effect: Social status and subjective well-being. *Psychological Science*, *23*(7), 764–771. https://doi.org/10.1177/0956797611434537

Archie E. A., Altmann J., & Alberts S. C. (2012). Social status predicts wound healing in wild baboons. *Proceedings of the National Academy of Sciences*, *109*(23), 9017–9022. https://doi.org/10.1073/pnas.1206391109

Becker J. C., Kraus M. W., & Rheinschmidt-Same M. (2017). Cultural expressions of social class and their implications for group-related beliefs and behaviors. *Journal of Social Issues*, *73*(1), 158–174. https://doi.org/10.1111/josi.12209

Benenson J. F., & Abadzi H. (2020). Contest versus scramble competition: Sex differences in the quest for status. *Current Opinion in Psychology*, *33*, 62–68. https://doi.org/10.1016/j.copsyc.2019.07.013

Bjornsdottir R. T., & Rule N. O. (2017). The visibility of social class from facial cues. *Journal of Personality & Social Psychology*, *113*(4), 530–546. https://doi.org/10.1037/pspa0000091

Boothroyd L. G., Jones B. C., Burt D. M., & Perrett D. I. (2007). Partner characteristics associated with masculinity, health and maturity in male faces. *Personality & Individual Differences*, *43*(5), 1161–1173. https://doi.org/10.1016/j.paid.2007.03.008

Brown M. G., Wohn D. Y., & Ellison N. (2016). Without a map: College access and the online practices of youth from low-income communities. *Computers & Education*, *92*, 104–116. https://doi.org/10.1016/j.compedu.2015.10.001

Buss D. M., & Schmitt D. P. (2019). Mate preferences and their behavioral manifestations. *Annual Review of Psychology*, *70*, 77–110. https://doi.org/10.1146/annurev-psych-010418-103408

Buss D. M., & Shackelford T. K. (2008). Attractive women want it all: Good genes, economic investment, parenting proclivities, and emotional commitment. *Evolutionary Psychology*, *6*(1), 134–146. https://doi.org/10.1177/147470490800600116

Castro I. E., Hruska B., & Gump B. B. (2020). Race differences in the effect of subjective social status on hostility and depressive symptoms among 9-to 11-year-old children. *Journal of Racial & Ethnic Health Disparities*, *7*(5), 844–853. https://doi.org/10.1007/s40615-020-00707-9

Cheng J. T., Tracy J. L., Foulsham T., Kingstone A., & Henrich J. (2013). Two ways to the top: Evidence that dominance and prestige are distinct yet viable avenues to social rank and influence. *Journal of Personality and Social Psychology*, *104*(1), 103–125. https://doi.org/10.1037/a0030398

Cheng J. T., Tracy J. L., & Henrich J. (2010). Pride, personality, and the evolutionary foundations of human social status. *Evolution & Human Behavior*, *31*(5), 334–347. https://doi.org/10.1016/j.evolhumbehav.2010.02.004

Cheng J. T., Tracy J. L., Ho S., & Henrich J. (2016). Listen, follow me: Dynamic vocal signals of dominance predict emergent social rank in humans. *Journal of Experimental Psychology: General*, *145*(5), 536. https://doi.org/10.1037/xge0000166

Clarke H. H., & Clarke D. H. (1961). Social status and mental health of boys as related to their maturity, structural, and strength characteristics. *Research Quarterly. American Association for Health, Physical Education & Recreation*, *32*(3), 326–334. https://doi.org/10.1080/10671188.1961.10613154

DeBruine L. M. (2014). Women's preferences for male facial features. In *Evolutionary perspectives on human sexual psychology and behavior* (pp. 261–275). Springer.

De Waal F. B. (1986). The integration of dominance and social bonding in primates. *Quarterly Review of Biology*, *61*(4), 459–479. https://doi.org/10.1086/415144

Doll L. M., Hill A. K., Rotella M. A., Cárdenas R. A., Welling L. L., Wheatley J. R., & Puts D. A. (2014). How well do men's Faces and

voices index mate quality and dominance? *Human Nature*, *25*(2), 200–212. https://doi.org/10.1007/s12110-014-9194-3

Durkee P. K., Lukaszewski A. W., & Buss D. M. (2020). Psychological foundations of human status allocation. *Proceedings of the National Academy of Sciences*, *117*(35), 21235–21241. https://doi.org/10.1073/pnas.2006148117

Fan J., Liu F., Wu J., & Dai W. (2004). Visual perception of female physical attractiveness. *Proceedings of the Royal Society of London. Series B: Biological Sciences*, *271*(1537), 347–352. https://doi.org/10.1098/rspb.2003.2613

Finkelstein D. M., Kubzansky L. D., & Goodman E. (2006). Social status, stress, and adolescent smoking. *Journal of Adolescent Health*, *39*(5), 678–685. https://doi.org/10.1016/j.jadohealth.2006.04.011

Fiske S. T., Dupree C. H., Nicolas G., & Swencionis J. K. (2016). Status, power, and intergroup relations: The personal is the societal. *Current Opinion in Psychology*, *11*, 44–48. https://doi.org/10.1016/j.copsyc.2016.05.012

Foulsham T., Cheng J. T., Tracy J. L., Henrich J., & Kingstone A. (2010). Gaze allocation in a dynamic situation: Effects of social status and speaking. *Cognition*, *117*(3), 319–331. https://doi.org/10.1016/j.cognition.2010.09.003

Gangestad S. W., & Scheyd G. J. (2005). The evolution of human physical attractiveness. *Annual Review in Anthropology*, *34*, 523–548. https://doi.org/10.1146/annurev.anthro.33.070203.143733

Gangestad S. W., & Simpson J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral & Brain sciences*, *23*(4), 573–587. https://doi.org/10.1017/S0140525X0000337X

Geiger A. M., Kirschbaum C., & Wolf J. M. (2019). Comparison group matters for chronic stress effects of subjective social status. *Journal of Health Psychology*, *24*(14), 1923–1928. https://doi.org/10.1177/1359105317709511

Goodman E., Adler N. E., Daniels S. R., Morrison J. A., Slap G. B., & Dolan L. M. (2003). Impact of objective and subjective social status on obesity in a biracial cohort of adolescents. *Obesity Research*, *11*(8), 1018–1026. https://doi.org/10.1038/oby.2003.140

Goodman E., Adler N. E., Kawachi I., Frazier A. L., Huang B., & Colditz G. A. (2001). Adolescents' perceptions of social status: Development and evaluation of a new indicator. *Pediatrics*, *108*(2), e31–e31. https://doi.org/10.1542/peds.108.2.e31

Goodman E., Huang B., Schafer-Kalkhoff T., & Adler N. E. (2007). Perceived socioeconomic status: A new type of identity that influences adolescents' self-rated health. *Journal of Adolescent Health*, *41*(5), 479–487. https://doi.org/10.1016/j.jadohealth.2007.05.020

Henrich J., & Gil-White F. J. (2001). The evolution of prestige: Freely conferred deference as a mechanism for enhancing the benefits of cultural transmission. *Evolution & Human Behavior*, *22*(3), 165–196. https://doi.org/10.1016/S1090-5138(00)00071-4

Holland E., Wolf E. B., Looser C., & Cuddy A. (2017). Visual attention to powerful postures: People avert their gaze from nonverbal dominance displays. *Journal of Experimental Social Psychology*, *68*, 60–67. https://doi.org/10.1016/j.jesp.2016.05.001

Hopcroft R. L. (2006). Sex, status, and reproductive success in the contemporary United States. *Evolution and Human Behavior*, *27*(2), 104–120. https://doi.org/10.1016/j.evolhumbehav.2005.07.004

Houle J. N. (2014). Disparities in debt: Parents' socioeconomic resources and young adult student loan debt. *Sociology of Education*, *87*(1), 53–69. https://doi.org/10.1177%2F0038040713512213

Huynh V. W., & Chiang J. J. (2018). Subjective social status and adolescent health: The role of stress and sleep. *Youth & Society*, *50*(7), 926–946. https://doi.org/10.1177%2F0044118X16646028

Jæger M. M. (2011). "A thing of beauty is a joy forever"? returns to physical attractiveness over the life course. *Social Forces*, *89*(3), 983–1003. https://doi.org/10.1093/sf/89.3.983

Jones B. C., DeBruine L. M., Main J. C., Little A. C., Welling L. L., Feinberg D. R., & Tiddeman B. P. (2010). Facial cues of dominance modulate the short-term gaze-cuing effect in human observers. *Proceedings of the Royal Society: Biological Sciences*, *277*(1681), 617–624. https://doi.org/10.1098/rspb.2009.1575

Kalma A. (1991). Hierarchisation and dominance assessment at first glance. *European Journal of Social Psychology*, *21*(2), 165–181. https://doi.org/10.1002/ejsp.2420210206

Karvonen S., & Rahkonen O. (2011). Subjective social status and health in young people. *Sociology of Health & Illness*, *33*(3), 372–383. https://doi.org/10.1111/j.1467-9566.2010.01285.x

Kordsmeyer T. L., Freund D., Vugt M. V., & Penke L. (2019). Honest signals of status: Facial and bodily dominance are related to success in physical but not nonphysical competition. *Evolutionary Psychology*, *17*(3), 1–12. https://doi.org/10.1177/1474704919863164

Kraus M. W., & Keltner D. (2009). Signs of socioeconomic status: A thin-slicing approach. *Psychological Science*, *20*(1), 99–106. https://doi.org/10.1111/j.1467-9280.2008.02251.x

Kraus M. W., & Mendes W. B. (2014). Sartorial symbols of social class elicit class-consistent behavioral and physiological responses: A dyadic approach. *Journal of Experimental Psychology*, *143*(6), 2330. https://doi.org/10.1037/xge0000023

Kraus M. W., Tan J. J., & Tannenbaum M. B. (2013). The social ladder: A rank-based perspective on social class. *Psychological Inquiry*, *24*(2), 81–96. https://doi.org/10.1080/1047840X.2013.778803

Lam C. K., Van der Vegt G. S., Walter F., & Huang X. (2011). Harming high performers: A social comparison perspective on interpersonal harming in work teams. *Journal of Applied Psychology*, *96*(3), 588–601. https://doi.org/10.1037/a0021882

Langlois J. H., Kalakanis L., Rubenstein A. J., Larson A., Hallam M., & Smoot M. (2000). Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychological Bulletin*, *126*(3), 390–423. https://doi.org/10.1037/0033-2909.126.3.390

Lemeshow A. R., Fisher L., Goodman E., Kawachi I., Berkey C. S., & Colditz G. A. (2008). Subjective social status in the school and change in adiposity in female adolescents: Findings from a prospective cohort study. *Archives of Pediatrics & Adolescent Medicine*, *162*(1), 23–28. https://doi.org/10.1001/archpediatrics.2007.11

Lieberz K. A., Windmann S., Geniole S. N., McCormick C. M., Mueller-Engelmann M., Gruener F., & Steil R. (2017). The facial width-to-height ratio determines interpersonal distance preferences in the observer. *Aggressive Behavior*, *43*(5), 460–470. https://doi.org/10.1002/ab.21704

Ma D. S., Correll J., & Wittenbrink B. (2015). The Chicago face database: A free stimulus set of faces and norming data. *Behavior*

Research Methods, *47*(4), 1122–1135. https://doi.org/10.3758/s13428-014-0532-5

Main J. C., Jones B. C., DeBruine L. M., & Little A. C. (2009). Integrating gaze direction and sexual dimorphism of face shape when perceiving the dominance of others. *Perception*, *38*(9), 1275–1283. https://doi.org/10.1068/p6347

Mast M. S., & Hall J. A. (2004). Who is the boss and who is not? Accuracy of judging status. *Journal of Nonverbal Behavior*, *28*(3), 145–165. https://doi.org/10.1023/B:JONB.0000039647.94190.21

Mattan B. D., Kubota J. T., & Cloutier J. (2017). How social status shapes person perception and evaluation: A social neuroscience perspective. *Perspectives on Psychological Science*, *12*(3), 468–507. https://doi.org/10.1177/1745691616677828

Mueller U., & Mazur A. (1996). Facial dominance of west point cadets as a predictor of later military rank. *Social Forces*, *74*(3), 823–850. https://doi.org/10.1093/sf/74.3.823

Muller U., & Mazur A. (1997). Facial dominance in homo sapiens as honest signaling of male quality. *Behavioral Ecology*, *8*(5), 569–579. https://doi.org/10.1093/beheco/8.5.569

Oosterhof N. N., & Todorov A. (2008). The functional basis of face evaluation. *Proceedings of the National Academy of Sciences*, *105*(32), 11087–11092. https://doi.org/10.1073/pnas.0805664105

Quist M. C., Watkins C. D., Smith F. G., DeBruine L. M., & Jones B. C. (2011). Facial masculinity is a cue to women's Dominance. *Personality & Individual Differences*, *50*(7), 1089–1093. https://doi.org/10.1016/j.paid.2011.01.032

Quon E. C., & McGrath J. J. (2014). Subjective socioeconomic status and adolescent health: A meta-analysis. *Health Psychology*, *33*(5), 433–447. https://doi.org/10.1037/a0033716

Rahal D, Chiang J J, Fales M, Fuligni A J, Haselton M G, Slavich G M, & Robles T F (2020). Early life stress, subjective social status, and health during late adolescence. *Psychology and health*, *35*(12), 1531–1549. https://doi.org/10.1080/08870446.2020.1761977

Rahal D., Huynh V., Cole S., Seeman T., & Fuligni A. (2020). Subjective social status and health during high school and young adulthood. *Developmental Psychology*, *56*(6), 1220–1232. https://doi.org/10.1037/dev0000919

Reh S., Tröster C., & Van Quaquebeke N. (2018). Keeping (future) rivals down: Temporal social comparison predicts coworker social undermining via future status threat and envy. *Journal of Applied Psychology*, *103*(4), 399–415. https://doi.org/10.1037/apl0000281

Rhode D. L. (2010). *The beauty bias: The injustice of appearance in life and law*. Oxford University Press.

Rule N. O., & Ambady N. (2009). She's got the look: Inferences from female chief executive officers' faces predict their success. *Sex Roles*, *61*(9–10), 644–652. https://doi.org/10.1007/s11199-009-9658-9

Sapolsky R. M. (2004). Social status and health in humans and other animals. *Annual Review of Anthropology*, *33*, 393–418. https://doi.org/10.1146/annurev.anthro.33.070203.144000

Sell A., Cosmides L., & Tooby J. (2014). The human anger face evolved to enhance cues of strength. *Evolution & Human Behavior*, *35*(5), 425–429. https://doi.org/10.1016/j.evolhumbehav.2014.05.008

Sell A., Cosmides L., Tooby J., Sznycer D., von Rueden C., & Gurven M. (2009). Human adaptations for the visual assessment of strength and fighting ability from the body and face. *Proceedings of the Royal Society B: Biological Sciences*, *276*, 575–584. https://doi.org/10.1002/ab.21544

Setchell J. M., & Wickings E. J. (2005). Dominance, status signals and coloration in male mandrills (mandrillus sphinx). *Ethology*, *111*(1), 25–50. https://doi.org/10.1111/j.1439-0310.2004.01054.x

Shively C. (1985). The evolution of dominance hierarchies in nonhuman primate society. In *Power, dominance, and nonverbal behavior* (pp. 67–87). Springer, New York.

Smuts B. B. (1985). *Sex and friendship in baboons*. Aldine de Gruyter.

Stirrat M., Stulp G., & Pollet T. V. (2012). Male facial width is associated with death by contact violence: Narrow-faced males are more likely to die from contact violence. *Evolution & Human Behavior*, *33*(5), 551–556. https://doi.org/10.1016/j.evolhumbehav.2012.02.002

Sweeting H., West P., Young R., & Kelly S. (2011). Dimensions of adolescent subjective social status within the school community: Description and correlates. *Journal of Adolescence*, *34*(3), 493–504. https://doi.org/10.1016/j.adolescence.2010.06.001

Třebický V., Havlíček J., Roberts S. C., Little A. C., & Kleisner K. (2013). Perceived aggressiveness predicts fighting performance in mixed-martial-arts fighters. *Psychological Science*, *24*(9), 1664–1672. https://doi.org/10.1177%2F0956797613477117

Walpole M. (2003). Socioeconomic status and college: How SES affects college experiences and outcomes. *Review of Higher Education*, *27*(1), 45–73. https://doi.org/10.1353/rhe.2003.0044

Walter K. V., Conroy-Beam D., Buss D. M., Asao K., Sorokowska A., Sorokowski P., Aavik T., Akello G., Alhabahba M. M., Alm C., & Amjad N. (2020). Sex differences in mate preferences across 45 countries: A large-scale replication. *Psychological Science*, *31*(4), 408–423. https://doi.org/10.1177/0956797620904154

Weeden J., Abrams M. J., Green M. C., & Sabini J. (2006). Do high-status people really have fewer children? *Human Nature*, *17*(4), 377–392. https://doi.org/10.1007/s12110-006-1001-3

Witkower Z., Tracy J. L., Cheng J. T., & Henrich J. (2020). Two signals of social rank: Prestige and dominance are associated with distinct nonverbal displays. *Journal of Personality & Social Psychology*, *118*(1), 89. https://doi.org/10.1037/pspi0000181

Wolff L. S., Acevedo-Garcia D., Subramanian S. V., Weber D., & Kawachi I. (2010). Subjective social status, a new measure in health disparities research: Do race/ethnicity and choice of referent group matter? *Journal of Health Psychology*, *15*(4), 560–574. https://doi.org/10.1177/1359105309354345

Xu F., Wu D., Toriyama R., Ma F., Itakura S., & Lee K. (2012). Similarities and differences in Chinese and caucasian adults' use of facial cues for trustworthiness judgments. *PLoS One*, *7*(4), e34859. https://doi.org/10.1371/journal.pone.0034859

Zell E., Strickhouser J. E., & Krizan Z. (2018). Subjective social status and health: A meta-analysis of community and society ladders. *Health Psychology*, *37*(10), 979. https://doi.org/10.1037/hea0000667