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The Effect of Physical Height on Workplace Success and Income: Preliminary Test of a Theoretical Model

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In this article, the authors propose a theoretical model of the relationship between physical height and career success. We then test several linkages in the model based on a meta-analysis of the literature, with results indicating that physical height is significantly related to measures of social esteem ($\hat{\rho}$ = .41), leader emergence ($\hat{\rho}$ = .24), and performance ($\hat{\rho}$ = .18). Height was somewhat more strongly related to success for men ($\hat{\rho}$ = .29) than for women ($\hat{\rho}$ = .21), although this difference was not significant. Finally, given that almost no research has examined the relationship between individuals' physical height and their incomes, we present four large-sample studies (total N = 8,590) showing that height is positively related to income ($\hat{\beta}$ = .26) after controlling for sex, age, and weight. Overall, this article presents the most comprehensive analysis of the relationship of height to workplace success to date, and the results suggest that tall individuals have advantages in several important aspects of their careers and organizational lives.

"Short people got no reason, to live."
—Randy Newman, *Short People*[1]

"I feel as tall as you."—Ellis Meredith, U.S. suffragist

There seems to be a societal impression that taller people are more successful in life. Although it is tempting to dismiss this belief as a folk tale, research suggests that some elements of life are easier for taller people because height is a socially desirable asset (Roberts & Herman, 1986). For example, taller individuals are judged as being more persuasive (Young & French, 1996), more attractive as mates (Freedman, 1979; Harrison & Saeed, 1977; Lerner & Moore, 1974), and more likely to emerge as a leader of other people (Higham & Carment, 1992; Stogdill, 1948). Indeed, on the latter point, not since 1896 have U.S. citizens elected a President whose height was below average; William McKinley at 5 ft 7 in. (1.7 m) was ridiculed in the press as a "little boy".

Theoretically, the importance of height has evolutionary origins, because animals use height as an index for power and strength when making fight-or-flight decisions. As noted by Freedman (1979), "Throughout nature the rule is the bigger, the more dangerous" (p. 92). Thus, from a sociobiological perspective, height equals power and therefore demands respect. Perhaps due to the close linkage between height and social power, there also appears to be a psychology of stature whereby people's height has far-reaching consequences on their dispositions, personalities, and behaviors. In fact, Alfred Adler coined the phrase *Napoleon complex* to describe cases when peoples' short stature makes them feel inadequate, leading to an inferiority complex and the adoption of overaggressive behavior to compensate for lack of height and power (Adler, 1956; Martel & Biller, 1987).

Height should be particularly relevant in the workplace where issues of persuasion and power take on special significance. Some evidence exists for this position, because many employers seem to believe that height and workplace success are linked. For example, Kurtz (1969) found that the majority of recruiters (78%) believed that salespersons of above average height were more impressive to customers than shorter salespersons. Lester and Sheehan (1980) found that supervisors expected short police officers to receive more complaints, cause more disciplinary problems, and engender poorer morale than taller police officers. In the context of academia, Hensley (1993) noted, "The perception seems to exist that taller individuals are somehow more capable, able, or competent" (p. 40). Moreover, as suggested previously, some qualitative reviews have suggested positive relationships of height with performance, leader effectiveness, and leader emergence (see Hensley & Cooper, 1987; Roberts & Herman, 1986).

To develop the literature on height and workplace success, the present study has three goals. First, although some past research has suggested interesting linkages between physical height and measures of career success, no conceptual model has been proposed to articulate why or how this linkage exists. Accordingly, we first address the atheoretical nature of the existing literature by

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[1] The song brought Newman accusations of the very injustice he was satirizing, and in Maryland it remains illegal for radio stations to air the song.

proposing a process model of the height–career success relationship.

Next, we conduct a meta-analysis of the height–workplace success literature to test some of the general implications of the process model. There has not been a comprehensive attempt to assess the general trend of findings across the height–career success studies that have accumulated over the past 75 years. Thus, research on height and workplace success has been conducted in many different methodological contexts across many different outcomes, and no attempt has been made to assess the robustness of the effects across investigations. In addition to showing the general strength and variability of relationships, a statistical examination of past research is valuable because trends in research are difficult to interpret qualitatively. For example, after reviewing both positive and null relationships in their review of the literature, Roberts and Herman (1986) noted, “The evidence to support or contradict the existence of systematic prejudices against tall or short individuals remains inconsistent” (p. 134).

Finally, we conduct four new investigations of the relationship between individuals’ height and their personal incomes. Although income is the most common index of career success (e.g., Judge, Cable, Boudreau, & Bretz, 1995; Whitely, Dougherty, & Dreher, 1991), almost no research has examined how height affects income levels. If tall people are in greater demand and less supply than average-sized people, then firms should be willing to pay more to get them. However, only three published articles have empirically examined this hypothesis (Deck, 1968; Frieze, Olson, & Good, 1990; Melamed, 1994); because participants in these existing studies reported both their salaries and height at the same time, it is possible that people exaggerated both their income and their height (Roberts & Herman, 1986). Moreover, existing research on the height–income relationship has been confined to the hiring context, and researchers have suggested that this relationship should disappear once managers have the opportunity to observe true performance (Hensley & Cooper, 1987). In this article, we conduct four investigations of the height–income linkage across the course of individuals’ careers, using measures of height and income that are either longitudinal or independently reported.

THEORETICAL MODEL OF PHYSICAL HEIGHT AND CAREER SUCCESS

Figure 1 displays the hypothesized model that links height and career success. Consistent with past research, we conceptualize career success as the outcomes or achievements one has accumulated as a result of one’s work, measured by earnings (i.e., compensation) and ascendancy into leadership positions (e.g., Gattiker & Larwood, 1988; Judge et al., 1995; Whitely et al., 1991). In general, the model suggests that height affects career success through several mediating processes. First, height affects how individuals regard themselves (self-esteem) and how individuals are regarded by others (social esteem). Next, social esteem and self-esteem affect individuals’ job performance as well as how supervisors evaluate their job performance, which in turn affects success in their careers. In the following discussion, we review the conceptual and empirical evidence for each linkage in the model. Then, we propose several general hypotheses that emerge from the model that we test with a meta-analysis and four investigations of the height–income relationship. Because our purpose here is theory-building, we should note that the empirical portion of our study is not intended as a complete test of our proposed model. Rather, we test various relationships that are either directly suggested by the model or implied by the model.

Height→Social Esteem

By *social esteem*, we refer to how positively one is evaluated or regarded by others in society, which has been operationalized in past height research as “perceived stature,” “perceived esteem,” and “ascribed status” (e.g., Hensley, 1993; Kurtz, 1969; Lechelt, 1975; Wilson, 1968). As noted in the introduction, sociobiologists suggest that it was evolutionarily advantageous for creatures to interpret height as power (Freedman, 1979). Perhaps for this reason, both visual perception and social norms have developed around the meaning of size and height.

In terms of visual perception, research reveals a basic human perceptual bias whereby people expect a positive relationship between an entity’s size and its value or status (Dannenmaier & Thumin, 1964; Higham & Carment, 1992; Lechelt, 1975). Thus, studies have shown that people perceive more valuable things as larger than less valuable things; for example, coins are perceived as larger than cardboard disks of identical diameter (Bruner & Goodman, 1947), and jars filled with candy are judged to be heavier than jars of equal weight filled with sand (Dukes & Bevan, 1952). This perceptual bias also extends to judgments about people’s height and the extent to which they are esteemed by others. A number of studies have shown that the prestige of a person’s occupation affects judgments about his or her height and that presidential candidates who win are seen as being taller than their opponents who lose (Dannenmaier & Thumin, 1964; Hensley & Angoli, 1980; Lechelt, 1975; Wilson, 1968). For example, a study of Canadian voters revealed that, after the 1988 Canadian federal

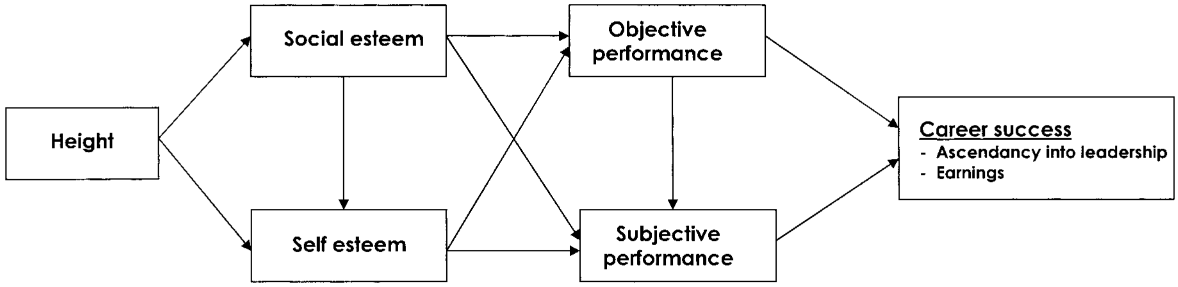

Figure 1. Theoretical model of the height–career success relationship.

election, voters judged the winner (Brian Mulroney) to be taller than before the election and judged the losers to be shorter than before the election (Higham & Carment, 1992).

In terms of social norms, height has long been a metaphor for importance and power (Roberts & Herman, 1986, p. 115) and is often used as a "heuristic for dominance" (Young & French, 1998, p. 321). Thus, individuals seem to hold taller people in higher esteem than shorter people and are more likely to be convinced and persuaded by tall people than short people (Baker & Redding, 1962; Zebrowitz, 1994). Language also helps reveal the social value of height (Hensley & Cooper, 1987). When a person is highly esteemed, he may be described as a "big man," and we "look up" to and admire those who are tall (Frieze et al., 1990, p. 47; Hensley & Angoli, 1980). Thus, as shown in the model, the first process that links height to career success is the esteem in which others hold tall individuals.

Height→Self-Esteem

In addition to influencing how others perceive us, height also may affect how we regard ourselves.[2] Studies show that physical appearance has a bearing on individuals' psychological adjustment (DelRosario, Brines, & Coleman, 1984) and is one of the best correlates of self-esteem (Locke, McClear, & Knight, 1996). As noted earlier, physical height is linked with social power and respect, and therefore short people may become dissatisfied with their physical stature (Adler, 1956; Martel & Biller, 1987). Across time, individuals' insecurities about their height may lead to personalities that reflect their stature, perhaps even resulting in aggressiveness and arrogance that serve as compensatory mechanisms (Adler, 1956). Also, as suggested by the linkage in Figure 1 between social esteem and self-esteem, people are not immune to how others view them, and people tend to take on the attributes that society ascribes to them (Jones, 1977). Accordingly, tall individuals may develop greater feelings of self-worth and self-confidence, because they are consistently viewed and treated with respect by others; this becomes a self-fulfilling prophecy (Roberts & Herman, 1986). Although little empirical research has examined the link between height and self-esteem (Martel & Biller, 1987), Hood (1963) found that short males scored slightly but significantly higher than tall males on the inferiority and depression scales of the Minnesota Multiphasic Personality Inventory, and Adams (1980) found that height was positively associated with external locus of control and emotional reactivity.

Social Esteem→Performance

As indicated in the model, we expect the esteem in which others hold an individual to affect that individuals' job performance. In this article, we examine two types of job performance: objective performance (i.e., job or task outcomes and results) and subjective performance (i.e., how others such as managers evaluate performance). On one hand, this distinction is very useful because it is important to determine if height simply alters others' perceptions of individuals (leading to more favorable subjective ratings) or if taller people are in fact better performers according to objective criteria. On the other hand, the distinction between objective and subjective job performance may be much clearer in theory than in reality. For example, sales revenues may seem to be an objective performance measure, but in many cases it depends on subjective appraisals such as who gets the best sales leads, who generates the most favorable customer reactions, and so forth. Thus, in the present article, we examine subjective and objective job performance separately but offer the caveat that the distinction may not be unambiguous for many jobs.

Theoretically, the esteem in which a person is held by others can lead to objective performance, particularly in positions where social interaction is important. For example, customers may experience greater admiration or respect for tall people during interactions and therefore may be more likely to buy from a tall salesperson (Kurtz, 1969). Likewise, people who are admired or held in esteem may be more able to develop trust, acquire information, or negotiate with others more effectively. Thus, an individual's social power and stature may create a self-fulfilling process: esteemed people are more able to deliver job results that make them even more esteemed (Dipboye, 1982; Roberts & Herman, 1986).

The esteem in which others hold a person should be even more likely to affect subjective performance than objective performance. First, others' esteem for an individual can indirectly affect managers' subjective job evaluations because, as described previously, social esteem can affect the actual job results that are produced by the individual. Naturally, job results affect managers' performance appraisals. However, regardless of actual performance levels, social esteem and respect also can create expectations in individuals' managers that lead to biased hypothesis testing (Snyder & Cantor, 1979), thus resulting in a self-fulfilling process (Merton, 1948). In other words, managers may factor their initial beliefs about employees into their subjective appraisals of performance (Dipboye, 1982; Roberts & Herman, 1986), thereby "causing" the relationships they expected.

Self-Esteem→Performance

Figure 1 shows that we also expect self-esteem to mediate the link between height and performance. Self-esteem, confidence, and poise are assets on most jobs and lead to enhanced job performance (Erez & Judge, 2001). Moreover, even after controlling for actual productivity, we expect individuals with positive self-esteem to have higher performance ratings because "self-positive" individuals are viewed more favorably and are better liked (Judge, Erez, & Bono, 1998). Thus, we predict that self-esteem is positively related to managers' performance ratings (Judge & Bono, 2001).

Performance→Career Success

The final stage in the model links employees' objective and subjective performance to their earnings and career success. Given

[2] Whereas social esteem could be considered to be synonymous with stature (stature being defined as a quality or status that is associated with height), self-esteem is a concept regarded by many as a trait (Neiss, Sedikides, & Stevenson, 2002). For example, research on core self-evaluations views self-esteem as an indicator of a higher order trait (Judge, Erez, Bono, & Thoresen, 2002). For our purposes, we view self-esteem as a broad concept that has a stable trait component (owing to genetic influences) but also is susceptible to environmental influences, as is the case when one's height influences appraisals of one's self-worth.

that most organizations desire high productivity, organizational rewards such as pay level and promotions often are tied, at least in part, to employees' productivity on the job (e.g., Barkema & Gomez-Mejia, 1998; Cleveland, Murphy, & Williams, 1989). In most firms, employees also receive subjective performance evaluations from their managers, thus giving firms the opportunity to incorporate employee behaviors and attitudes with their objective job accomplishments (Cleveland et al., 1989). Accordingly, firms can distribute rewards such as pay level and promotions based on both objective results (what was accomplished) and subjective evaluations (how it was accomplished).

General Predictions From Model

We have developed a general theoretical model of the processes that mediate an individual's physical height and his or her career success. Although each path or linkage in the model represents an avenue for future research, several overarching implications of the model emerge. As an initial examination of the model, we next propose some general hypotheses implied by the model that must be supported if the model is deserving of future research. For example, although the model does not show a direct link from height to career success, there is little reason for future researchers to investigate the proposed mediating linkages between height and career success if there is not a relationship between the two variables in the first place (Baron & Kenny, 1986).[3] Moreover, as described in the introduction, the three previous studies that have investigated the height–income relationship may be flawed, because they investigated initial job offers where height may be especially relevant (i.e., interviewers may use height as a surrogate for persuasiveness or even intelligence) rather than studying careers. Thus, as a preliminary examination of the model, we propose:

> *Hypothesis 1a:* Height is positively related to ascendancy into leadership.

> *Hypothesis 1b:* Height is positively related to earnings.

Next, the model suggests several links that mediate the relationships between height and career success, ranging from social- and self-esteem to performance (i.e., subjective and objective performance). Theoretically, the pattern of statistical relationships should follow this trend, such that the effect of height is greatest on the most proximal mediators and is smallest with the most distal mediators (Baron & Kenny, 1986). This logic leads to the following prediction:

> *Hypothesis 2:* Height exhibits a simplex relationship with status, performance, and then career success, such that height is most strongly related to status and least strongly related to career success.

Finally, the logic behind the model indicates that height should be more strongly related to subjective outcomes (e.g., supervisors' performance evaluations, leadership effectiveness ratings) than objective outcomes (e.g., actual sales performance, promotions). As described earlier, theory suggests that height may play a role in the workplace because it creates self-fulfilling prophecies and perceptual biases in judges, including interviewers and supervisors (Dipboye, 1982). From this vantage point, an employee's height should affect perceptions and judgments about performance more than it affects the employee's objective job or task performance. In fact, Hensley and Cooper (1987) suggested that "height is an important attribute in securing a position but it has little effect on job performance" (p. 844). Although our proposed model challenges Hensley and Cooper's (1987) assertion, the model does suggest that to the extent that height affects objective performance, subjective performance ratings are twice affected by height. In other words, managers' subjective performance ratings are based in part on actual performance and in part on self-fulfilling processes whereby managers are more likely to attribute greater performance to taller people (Merton, 1948; Roberts & Herman, 1986). No past research has tried to identify how height affects objective versus subjective outcomes, so it appears useful to distinguish between different types of workplace success and to make the following prediction about the strength of relationships.

> *Hypothesis 3:* Height is more strongly related to subjective outcomes than objective outcomes.

In the next section of this article, we describe a meta-analysis of the existing literature and four new investigations that allow us to test the general hypotheses implied by our theoretical model.

META-ANALYSIS OF RELATIONSHIP BETWEEN HEIGHT AND WORKPLACE SUCCESS

Literature Search

To identify all possible studies of the relationships between height and various criteria that indicate success (leadership, performance, status, earnings, income), we searched several databases (PsycINFO, Social Sciences Abstracts, Sociological Abstracts). In addition to the electronic searches, we examined the reference lists of reviews of the literature (Bass, 1990; Hensley & Cooper, 1987; Roberts & Herman, 1986; Stogdill, 1948). Our searches resulted in the identification of 71 articles, 44 of which contained correlations or information that could be translated into correlations. Articles were excluded for one of four reasons: (a) they were reviews of the literature, and thus had no original correlations to report; (b) they did not report statistics on height; (c) they did report statistics on height, but in such a form that a correlation could not be computed (percentages, means with no standard deviations, etc.); and (d) they were deemed inappropriate for other reasons, such as one study that reported height–income correlations across nations (i.e., at the nation level of analysis; Steckel, 1983). A list of studies included in the meta-analysis is provided in the reference list.

Meta-Analytic Procedures

Using Hunter and Schmidt's (1990) methodology, we corrected each primary correlation for attenuation due to unreliability, and then we computed the sample-weighted mean of these corrected correlations. When height was measured precisely with a physical

[3] Direct links (e.g., from height to performance or career success) are certainly possible in the model, but for purposes of simplicity they are not shown in Figure 1.

examination, we assumed that it was measured perfectly. When height was estimated, self-reported, or taken from records, we used Copeland's (1938) estimate of the average reliability of height in personnel records (r_{xx} = .87). For the criterion measures, if reliability estimates were reported in the studies, we used these estimates. For the majority of studies, which did not report reliability estimates, we relied on the literature. We used Viswesvaran, Ones, and Schmidt's (1996) estimates for the reliability of supervisory ratings of job performance and leadership. For objective measures of job performance, we used Hunter, Schmidt, and Judiesch's (1990) estimate of the reliability of objective productivity measures (r_{yy} = .92; Barrick & Mount, 1991). For perceived status, we used Haug and Sussman's (1971) estimate of the correlation (r_{yy} = .74) between the two most widely used measures of occupational status (thus providing an index of alternative forms reliability). We made no correction for range restriction.

In addition to reporting point estimates for corrected correlations, we report 80% credibility intervals and 90% confidence intervals around the estimated population correlations. Confidence intervals provide an estimate of the variability around the estimated mean corrected correlation; a 90% confidence interval around a positive point estimate that excludes zero indicates that if the estimation procedures were repeated a large number of times, the point estimate would be larger than zero in 95% of the cases. Credibility intervals provide an estimate of the variability of individual correlations across studies; an 80% credibility interval excluding zero indicates that 90% of the individual correlations in the meta-analysis excluded zero (for positive correlations, less than 10% are zero or negative). Thus, confidence intervals estimate variability in the mean correlation, whereas credibility intervals estimate variability in the individual correlations across the studies.

To test for the presence of moderator effects, as recommended by Sagie and Koslowsky (1993), we report the *Q* statistic (Hunter & Schmidt, 1990, p. 151), which tests for homogeneity in the true correlations across studies. A significant *Q* statistic (which is approximately distributed as a chi-square) indicates the likelihood of moderators that explain variability in the correlations across studies. If a significant *Q* statistic across moderator categories becomes nonsignificant within a moderator category, it suggests that the moderator explains a significant amount of the variability in the correlations across the moderator categories.

Results

Results of the meta-analysis are provided in Table 1. The results show that, across all criteria, height has an uncorrected correlation of .22 with the criteria and a corrected correlation of .26. The confidence interval excludes zero, which indicates that one can be confident that the average validity of height is nonzero. The credibility interval also excludes zero, which indicates that more than 90% of the individual correlations are positive.

Next, Table 1 reports validity broken down by (a) *gender of sample* (all male, all female, mixed gender); (b) *type of criterion* (*social esteem* [measures of the perceived status, potential, esteem, or stature of individuals], *leader emergence* [election, nomination, or ranking of individuals in leadership positions], job, task, or academic *performance* [objective measures of job performance, such as sales, academic performance, athletic performance, or performance ratings]); and (c) *measure of the criterion* (subjective

Table 1
Meta-Analysis of Relationship of Height to Success

						80% CV		90% CI		
Category	k	N	$\bar{r}$	$\hat{\rho}$	$SD_{\hat{\rho}}$	Lower	Upper	Lower	Upper	Q
Across all criteria										
Overall	45	7,691	.22	.26	.20	.01	.51	.20	.32	254.06**
Gender of sample										
Male	29	4,795	.24	.29	.20	.03	.54	.27	.37	161.24**
Female	14	2,262	.18	.21	.18	−.02	.44	.10	.31	61.43**
Mixed	5	644	.25	.30	.26	−.04	.63	.05	.54	30.86**
Type of criterion										
Social esteem	12	1,770	.36	.41	.16	.20	.62	.31	.51	55.08**
Leader emergence	16	2,352	.17	.24	.25	−.07	.56	.12	.37	90.32**
Performance	14	2,907	.16	.18	.14	.00	.37	.10	.27	58.23**
Measure of criterion										
Subjective outcomes	29	4,087	.25	.31	.22	.02	.59	.22	.39	166.43**
Objective outcomes	16	3,604	.18	.21	.16	.01	.41	.13	.29	78.22**

Note. The number of correlations within each moderator category does not always match the number of overall correlations, because in some studies correlations were reported by moderator category or because the classification of some criteria was ambiguous (and therefore were excluded). Subjective outcomes included ratings of performance, ratings of leadership effectiveness, and ratings of social esteem. Objective outcomes of criteria included objective measures of job performance, earnings, and ascension to formal positions of leadership. k = number of correlations; N = combined sample size; $\bar{r}$ = estimated average uncorrected correlation; $\hat{\rho}$ = estimated true score correlation; $SD_{\hat{\rho}}$ = standard deviation of estimated true score correlation; CV = credibility interval; CI = confidence interval; Q = test for homogeneity in the true correlations across studies.
** $p < .01$.

ratings or an extrinsic or objective measure of earnings, performance, or attainment). Broken down by gender, results reveal that height has somewhat higher validity for men ($\hat{\rho}$ = .29) than for women ($\hat{\rho}$ = .21), and the 80% credibility interval includes zero for women but not for men. On the other hand, the 90% confidence intervals exclude zero for both men and women, and the difference in the average correlation is not substantial. To determine whether the correlations were significantly different, we used the Quiñones, Ford, and Teachout (1995) Z test. The test revealed that the difference in the estimated corrected correlation ($\hat{\rho}$) was not significantly different for men and women ($Z = 1.86$, *ns*).

As for the validity broken down by type of criterion, the results in Table 1 reveal that social esteem ($\hat{\rho}$ = .41) has the strongest correlation with height, followed by leadership ($\hat{\rho}$ = .24) and then performance ($\hat{\rho}$ = .18). The mean correlations of all three variables are distinguishable from zero, which indicates that one can be confident that the average correlations of height with social esteem, leadership, and performance are distinguishable from zero. The credibility intervals exclude zero for social esteem and performance, but not for leadership, which indicates high variability in the height–leadership correlations across studies. Thus, these results generally (on average) support Hypothesis 1a, which states that height is positively related to the leader emergence aspect of career success. Again by using the Quiñones et al. (1995) test, we found that the height–social esteem correlation is significantly higher than the correlations of height with leader emergence ($Z = 2.40$, $p < .01$) and performance ($Z = 4.91$, $p < .01$). These results provide partial support for Hypothesis 2 (height is more strongly linked to social esteem than it is to performance or leader emergence), although the data did not reveal predicted differences in the size of the height–performance versus the height–leader emergence linkages. Finally, in terms of validities by criterion measure (subjective ratings vs. extrinsic measure), the results show that subjective ratings ($\hat{\rho}$ = .31) have higher validity than extrinsic measures ($\hat{\rho}$ = .21), and the difference is significant ($Z = 2.17$, $p < .01$). Thus, Hypothesis 3 is supported.[4]

Alhough meta-analysis is a useful means of summarizing results across studies, the results are limited to bivariate relationships. Guzzo, Jackson, and Katzell (1987) comment that the failure to take potential confounds into account is a limitation with meta-analysis, noting, "A major threat to internal validity is the failure to account for the possible influences of other variables on the relationships of interest" (p. 436). We next describe four new investigations that examine the relationship between height and income, which links height to a new criterion (earnings) and allows us to test other aspects of the height effect.

ESTIMATING THE EFFECT OF HEIGHT ON EARNINGS

To increase the validity of the regression estimates with regard to the effect of height on earnings, we took several control variables into account.

Gender

The average height of Americans is 69.1 in. (175.5 cm) for men and 63.7 in. (161.7 cm) for women (*Body Measurements*, 2002), a difference of more than 5 in. (12.7 cm). The difference between earnings for men and women is one of the more well-documented facts in the compensation literature, and inferential studies consistently support gender differences in pay, even after controlling for other influences (Rynes & Bono, 2000). The reasons for the gender gap are manifold and complex, although the gap appears to generalize across nations (Gornick & Jacobs, 1998). Because men and women differ in both height and earnings, it is possible that gender may affect the height–income relationship.

Age

Over the life span, individuals lose 1 to 3 in. in their height, with the average individual losing 5 cm (roughly 2 in.) in height (AGS Geriatric Review, 2002). Because others may implicitly norm height by age, we control for age in estimating the effect of height on earnings.

Weight

Obviously, height and weight are correlated, and yet they may exert effects in opposite directions. Whereas there are many reasons to believe that height has positive effects on status-oriented variables (Roberts & Herman, 1986), weight may have the opposite effect. In reviewing the literature, Roehling (1999) concluded, "Overall, the evidence of consistent, significant discrimination against overweight employees is sobering. Evidence of discrimination is found at virtually every stage of the employment cycle" (p. 982). Because failure to distinguish between height and weight "naturally confounds the interpretation of any effects observed" (Roberts & Herman, 1986, p. 114), the individual effects of height and weight need to be isolated.

Method

To maximize the generalizability of the results, we studied the effect of height on earnings across four unique, complementary samples. The samples, participants, procedures, and measures are described, study-by-study, in the following discussion. We restricted the analyses to individuals who averaged 20 hours or more of work per week, except for Study 1, in which we restricted the analyses to individuals who were the primary wage earners in their family.

Study 1

Sample, Participants, and Procedure

Data for Study 1 were obtained from the Quality of Employment Survey (QES), a U.S. Department of Labor study of the working conditions of a

[4] We should note that Figure 1 refers to objective and subjective performance, whereas the results reported in Table 1 (that bear on Hypothesis 3) reference objective criteria (objective measures of job performance, earnings, and ascension to formal positions of leadership) and subjective criteria (rated performance, leadership effectiveness, or perceived status) more generally. Ideally, we would have separated studies by objective and subjective measures of performance. Unfortunately, there were not enough studies utilizing each of these measures of performance to conduct separate meta-analyses. There was only one study that related height to a subjective measure of job performance in a work setting (Collins, 1955); the other five studies utilizing subjective measures of performance concerned task performance or performance in an academic setting (e.g., Villimez, Eisenberg, & Carroll, 1986). For objective measures of performance, the situation was better, although there still were only eight studies relating height to objective job performance.

national probability sample of U.S. workers aged 16 and older in 1972–1973 (Quinn, Mangione, & Seashore, 1975). The University of Michigan Survey Research Center identified individuals through a national probability sampling procedure. Data were collected through personal interviews with individuals at their households. A large amount of data, including various demographic and personal data, were collected by trained interviewers. The structured interview schedule contained both closed- and open-ended questions, although for our study only responses to the closed-ended questions were utilized.

Measures

Earnings. Earnings were measured by the response to the interviewer question, "How much does your income from your job figure out to be a year, before taxes and other deductions are made?" Earnings were adjusted based on the Consumer Price Index to reflect 2002 U.S. dollars.

Age. Age was measured by asking each individual his or her age in years.

Gender. The interviewer recorded the sex of the respondent, where 1 = *male* and 2 = *female*.

Height. Height was measured by asking each individual to report his or her height in inches.

Weight. The interviewer evaluated each individual's weight relative to his or her height, using a 1 = *obese* to 5 = *skinny* scale. High scores reflect being overweight; the variable was reverse-scored so that 1 = *skinny*, 2 = *underweight*, 3 = *average for height*, 4 = *overweight*, and 5 = *obese*.

Study 2

Sample, Participants, and Procedure

Data for Study 2 were collected from participants in the National Longitudinal Surveys (NLS), a continuing project sponsored and directed by the Bureau of Labor Statistics, U.S. Department of Labor. In 1979, a longitudinal study of a cohort of young men and women aged 14 to 22 was begun (NLSY79). The surveys include data about a wide range of events such as schooling and career transitions, marriage and fertility, training investments, child-care usage, and drug and alcohol use. The NLSY79 has had high retention rates; therefore, many NLS survey members have been monitored for many years, most for decades.

The NLSY79 researchers identified households that were intended to be representative of the U.S. population. Thus, a national probability sample was identified; interviewers subsequently visited these households and performed screening interviews. The vast majority (87%) of individuals in visited households participated in the study. Most of the data were collected via personal interviews. From 1979–1993, individuals were interviewed every year. Since 1994, individuals were interviewed every other year. The last interview for which data are available took place in 2000. NLSY79 participants live in all 50 states and the District of Columbia.

Measures

Earnings. Earnings were measured by asking individuals to report their income from wages and salary. To increase the reliability of this variable and take advantage of the fact that this question was asked over time, one variable was created that reflected average earnings from 1985–2000 (α = .92). Earnings were adjusted based on the Consumer Price Index inflation index to reflect 2002 U.S. dollars.

Age. Age was measured with a question on the 2000 interview that asked the individual to report his or her age in years.

Gender. Gender was measured by a question on the original 1979 survey that asked the interviewer to record the gender of the individual. Gender was coded 1 = *male*, 2 = *female*.

Height. Height was the self-reported height of the individual, measured in inches. To form the most reliable measurement, height was measured as the average height reported in 1981 and 1985 (α = .97).

Weight. Weight was the self-reported weight of the individual as of 1985, reported in pounds.

Study 3

Sample, Participants, and Procedure

The data for this study were obtained from the Intergenerational Studies, administered by the Institute of Human Development, University of California at Berkeley. The Intergenerational Studies are a combination of the following three longitudinal studies commissioned by the Institute in the 1920s: (a) the Berkeley Guidance Study enrolled children born in Berkeley, California, from January 1928 to July 1929; (2) the Berkeley Growth Study enrolled children through area pediatricians and obstetricians and included infants born between January 1928 and May 1929 (given the time frame, there was some overlap with the Guidance sample, although most Guidance study members were born at home); and (c) the Oakland Growth Study, initiated in 1931, recruited children from five elementary schools in Oakland. There were three major follow-up studies, completed when participants were 30–38 (early adulthood), 41–50 (middle age), and 53–62 (late adulthood) years old. In these follow-up studies, participants were intensively interviewed about their work and family lives. Because essentially the same measures were collected in the three studies, they were combined in the analyses.

Measures

Earnings. Total earnings were measured at the Adult 2 stage (when the average individual was 41–50 years old) with an interview question that asked the individual to report his or her annual pretax earnings. Responses were placed in the following categories: 1 = *less than $15,000*, 2 = *$15,000–$19,999*, 3 = *$20,000–$29,999*, 4 = *$30,000–$39,999*, 5 = *$40,000–$49,999*, and 5 = *$50,000 and over*. This variable was standardized prior to analysis.

Age. Age was measured by the interviewer asking individuals to report their age. At the time of the interview, individuals' ages ranged from 29 to 39 years.

Gender. Gender of the individual was recorded at the onset of the study, when individuals were entered into the study at birth. Individuals' gender was originally coded as part of their identification number where M = *male* (57%) and F = *female* (43%). These alphanumeric codes were translated so that 1 = *male* and 2 = *female*.

Height. Height was measured as a result of an examination administered by a physician when the individuals were, on average, in their 30s. Height measurements were made in centimeters and were converted into inches.

Weight. Weight was measured as part of the same physical examination. Individuals' weight was measured with a scale and was coded in kilograms and converted into pounds.

Study 4

Sample, Participants, and Procedure

Participants were individuals from Great Britain's National Child Development Study (NCDS), a birth cohort survey that followed individuals who were born in Great Britain from March 3–9, 1958. The initial data collection focused on the newborn children and their parents. Since that time, there have been five follow-up interviews: 1965, 1969, 1974, 1981, and 1991. In 1991, individuals were 33 years old. The NCDS has gathered data from respondents on child development from birth to early adolescence, including such diverse areas as child care, health, physical statistics, home environment, parental involvement, economic activity, income, and housing. Data were collected using diverse methodologies, including interviews, questionnaires, parental interviews, and medical examinations.

Measures

Earnings. Earnings were measured in 1991 with a variable that assessed the individuals' current earnings per hour. The variable was transformed to reflect yearly earnings. Earnings were converted from British pounds to U.S. dollars and then were adjusted based on the Consumer Price Index to reflect 2002 dollars.

Gender. Gender was recorded at the commencement of the study and was coded 1 = *male*, 2 = *female*.

Height. Height was measured by averaging the height measurements at age 16 and age 23 (α = .93), during which individuals' height was measured by a local authority medical officer. Height was measured in centimeters, which we subsequently converted into inches.

Weight. Weight was measured by averaging the weight measures at age 16 and age 23 (α = .81). As with height, weight was measured by a local authority medical officer during individuals' medical examinations. Weight was measured in kilograms and was subsequently converted into pounds.

Results

Descriptive statistics and correlations among the study variables are provided in Tables 2 and 3. As is shown in Tables 2 and 3, height was significantly positively correlated with earnings in all four samples. The height–earnings correlations were relatively consistent, ranging from r = .24 to r = .35 (all ps < .01).

The regression results—using height, weight, age, and gender to predict earnings—are provided in Table 4. For Study 1, the regression results reveal that age (β = .15, p < .05) and height (β = .20, p < .01) positively predict earnings. The multiple correlation for the regression is R = .31 and R^2 = .09 (p < .01). For Study 2, gender negatively predicts earnings such that women earn less than men (β = -.20, p < .01). Age positively predicts earnings (β = .13, p < .01) and weight negatively predicts earnings (β = -.06, p < .01). Height positively predicts earnings (β = .20, p < .01). The multiple correlation is .35, and the independent variables explain 13% of the variance in earnings. For Study 3, height significantly predicts earnings (β = .44, p < .01). The multiple correlation is R = .38 (p < .01), and on average the independent variables explain 15% of the variance in earnings. Finally, in Study 4, gender (β = -.17, p < .01), weight (β = -.06, p < .01), and height (β = .18, p < .01) each significantly predict earnings. The multiple correlation is R = .29 (p < .01), and the independent variables explain 8% of the variance in earnings. Overall, the results are quite consistent with respect to the effect of height on earnings in that, across all four studies, height significantly predicted earnings with βs ranging from .18 to .44. Thus, Hypothesis 1b is supported.

In addition to the standardized regression (β) coefficients reported in Table 4, the results revealed that the unstandardized regression (B) coefficients have appreciable effect sizes. The unstandardized coefficient estimates reveal that each inch increase in height results in a predicted increase in annual earnings of $897 in Study 1, $728 in Study 2, and $743 in Study 4 (it was not possible to obtain effect size estimates for Study 3 given that salary was coded into categories). By averaging across these results, we find that an individual who is 72 in. tall could be expected to earn $5,525 more per year than someone who is 65 in. tall, even after controlling for gender, weight, and age.

One advantage of the four height–earnings studies over the meta-analysis is the ability to conduct more detailed analyses to uncover boundary conditions. Thus, we next examine the role of gender, intelligence, time, and occupation in the relationship between physical height and earnings.

Differential Effects by Gender

It has been speculated that the efficacy of height may be different for men and women. Specifically, Hensley and Cooper (1987) cautioned that height may be advantageous for men only, and Frieze and colleagues (1990) comment that, compared to men, tall women may be more apt to be seen as "too tall" (p. 48). Although the regression analyses that predict earnings with height control for gender, they do not address whether there is differential validity by gender. To investigate whether the validity of height varies for men and women, we conducted three types of analyses. First, descriptively, we calculated the average salary ($M_\$$) of men and women ±1 standard deviation (*SD*) beyond the mean in height. In Study 1, for men +1 *SD* in height (height ≥ 72.6 in.), $M_\$$ = $60,229; for men –1 *SD* in height (height ≤ 67.38 in.), $M_\$$ = $48,407; for women +1 *SD* in height (height ≥ 66.88 in.), $M_\$$ = $29,533; for women –1 *SD* in height (height ≤ 62.14 in.), $M_\$$ = $24,028. In Study 2, for men +1 *SD* in height (height ≥ 72.99 in.), $M_\$$ = $70,835; for men –1 *SD* in height (height ≤ 66.97 in.), $M_\$$ = $52,704; for women +1 *SD* in height (height ≥ 66.87 in.), $M_\$$ = $42,425; for women –1 *SD* in height (height ≤ 61.49 in.), $M_\$$ = $32,613. In Study 4, for men +1 *SD* in height (height ≥ 71.23 in.), $M_\$$ = $42,726; for men –1 *SD* in height (height ≤ 65.77

Table 2
Means (M), Standard Deviations (SD), and Intercorrelations Among Study 1 and Study 2 Variables

Variable	*M*	*SD*	1	2	3	4	5	*M*	*SD*
1. Gender	1.19	0.39	1.00	.04**	−.53**	−.72**	−.31**	1.46	0.50
2. Age	39.76	12.63	−.03	1.00	.07**	−.01	.11**	38.95	2.25
3. Weight	3.13	0.60	.02	.06	1.00	.63**	.18**	155.62	32.67
4. Height (in inches)	69.09	3.27	−.65**	.04	−.10	1.00	.31**	67.34	4.07
5. Earnings (U.S. dollars)	48,247.52	33,850.18	−.20**	.17**	.09	.24**	1.00	58,776.12	38,272.26

Note. Correlations for Study 1 (listwise n = 261) are below the diagonal. Correlations for Study 2 (listwise n = 4,314) are above the diagonal. Gender is coded as 1 = male, 2 = female. For Study 1, weight was coded on a 1 = *skinny* to 5 = *obese* scale. For Study 2, weight is in pounds. Earnings were adjusted to reflect 2002 dollars.
** p < .01, two-tailed.

Table 3
Means (M), Standard Deviations (SD), and Intercorrelations Among Study 3 and Study 4 Variables

Variable	*M*	*SD*	1	2	3	4	5	*M*	*SD*
1. Gender	1.43	0.50	1.00	—	−.49**	−.67**	−.26**	1.46	0.50
2. Age	32.79	2.63	.05	1.00	—	—	—	—	—
3. Weight (in lbs.)	154.42	28.27	−.74**	.15	1.00	.68**	.15**	135.95	22.18
4. Height (in inches)	68.35	4.00	−.76**	.03	.81**	1.00	.26**	61.56	10.06
5. Earnings (in U.S. dollars)	0.00	1.00	−.22**	−.01	.23**	.35**	1.00	36,626.15	14,474.21

Note. Correlations for Study 3 (listwise $n = 118$) are below the diagonal. Correlations for Study 4 (listwise $n = 3{,}872$) are listed above the diagonal. Age is not included in Study 4 because all individuals are the same age (within 3 weeks). Gender is coded as 1 = male, 2 = female.
** $p < .01$, two-tailed.

in.), $M_\$ = \$38{,}913$; for women +1 *SD* in height (height ≥ 66.13 in.), $M_\$ = \$35{,}825$; for women –1 *SD* in height (height ≤ 61.17 in.), $M_\$ = \$30{,}823$. With the exception of Study 4, these results show somewhat greater height effects for men than women, although the proportional or percentage gender differences are smaller.

Second, we estimated height–earnings relationships for men and women separately and then used Fisher's *r*-to-*Z* transformation to test the "male"and "female" correlations for significance. In no case, across the four studies, was the height–earnings correlation significantly different for men and women. Furthermore, the absolute value of the difference was relatively small ($r = .05$).

We also tested differential validity by gender using hierarchical moderated regression. The incremental R^2 values, when the interaction was added to the regression, were very small and nonsignificant across the four studies: Study 1, $\Delta R^2 = .007$ (*ns*); Study 2, $\Delta R^2 = .001$ (*ns*); Study 3, $\Delta R^2 = .002$ (*ns*); and Study 4, $\Delta R^2 = .001$ (*ns*). Thus, not only does height affect earnings controlling for gender, its effect appears to operate similarly for men and women. This result is concordant with the earlier meta-analytic results, where the average validity of height was not significantly different between the genders.

Role of Intelligence

It has been speculated that height and intelligence are positively related (Roberts & Herman, 1986), and therefore the reason tall people appear to have an advantage is really due to greater intellect. In Study 3, intelligence and height were indeed significantly correlated ($r = .26$, $p < .01$). However, controlling for intelligence did not affect the relationship of height with earnings. The standardized regression coefficient of height in predicting earnings changed from $\beta = .44$ to $\beta = .42$ when controlling for intelligence. On the other hand, for the participants in Study 2 for whom intelligence test scores were available, intelligence had no relationship with height ($r = -.05$, *ns*) or earnings ($r = .08$, *ns*). Thus, contrary to the speculation of some researchers, it does not appear that the advantages of height are due to a possible link between height and intelligence.

Table 4
Relationship of Height to Earnings: Studies 1–4

Variable	Study 1	Study 2	Study 3	Study 4
Gender	−.07	−.20**	.01	−.17**
Age	.15*	.13**	−.02	—
Weight	.10	−.06**	−.07	−.06**
Height	.20**	.20**	.44**	.18**
R	.31**	.35**	.38**	.29**
R^2	.09**	.13**	.15**	.08**
N	261	4,314	144	3,871

Note. With the exception or *R*, R^2, and *N*, table entries are standardized regression (β) coefficients not corrected for the effects of measurement error.
* $p < .05$. ** $p < .01$.

Does the Height Effect Decline Over Time?

Research has suggested that the validity of individual differences may decline over time, as the interval between the measurement of the individual difference and the criterion increases (Hulin, Henry, & Noon, 1990). Thus, to better understand the psychosocial implications of height, it is important to ascertain whether the validity of height declines over time. Specifically, is it most useful to be tall early in one's career, and do the advantages wane once the individual has acquired more job-relevant human capital? To investigate this possibility, we used data from Study 2, which contained the best information on earnings over time. In correlating height with income, the following correlations were observed by year: 1985, $r = .23$, $N = 10{,}471$; 1986, $r = .24$, $N = 10{,}100$; 1987, $r = .25$, $N = 9{,}800$; 1988, $r = .27$, $N = 9{,}828$; 1990, $r = .25$, $N = 9{,}684$; 1991, $r = .26$, $N = 8{,}401$; 1993, $r = .26$, $N = 8{,}161$; 1994, $r = .27$, $N = 8{,}049$; 1996, $r = .26$, $N = 7{,}868$; 1998, $r = .28$, $N = 7{,}559$; 2000, $r = .26$, $N = 7{,}236$. The results show that the validity of height in predicting earnings does not decline over time. If anything, there is a very slight upward trend in the correlations.

Does the Validity of Height Vary by Occupation?

According to the theoretical model, height affects career success, in part, because it affects individuals' social esteem, which in turn helps increase performance. From this perspective, the effect of height on earnings should be greater in occupations where stature and respect of others matter more. One way to investigate whether height is more relevant for more social occupations is to correlate height with income within occupational categories. Accordingly, again using Study 2 because it had the most complete occupational breakdowns, we correlated height and income based on the occupational breakdowns provided in the NLS database. The results of this correlational analysis are provided in Table 5. In general, the results are consistent with the proposition that in social

Table 5
Height–Income Correlations by Occupation: Study 2

Occupation	*r*	*n*
Sales	.41**	117
Managers	.35**	455
Blue collar	.32**	349
Service workers	.31**	265
Professional-technical	.30**	453
Clerical	.25**	358
Crafts, forepersons	.24**	250
Other	.33**	3,196
Overall	.33**	5,509

Note. The overall sample size does not equal the sum of the rest of the occupational sample sizes because occupational groups with small numbers of individuals (farmers and armed forces, $n < 10$) were excluded.
** $p < .01$, two-tailed.

interaction-oriented occupations— occupations that may rely on appearance and stature as a means of achieving success— height is more predictive of earnings. Specifically, height was correlated ($r = .41$, $p < .01$) with earnings in sales and in management ($r = .35$, $p < .01$). Height also was less valid in less social occupations, although height was slightly more predictive of earnings in blue-collar occupations ($r = .32$, $p < .01$) than in professional-technical occupations ($r = .30$, $p < .01$). It is worth noting that many professional-technical occupations (e.g., metallurgists, engineers, technicians, computer programmers) may not be particularly stature- or appearance-oriented. Finally, although height is generally less predictive of earnings in less social occupations, the validity of height does not entirely disappear. Height is moderately correlated with earnings even in clerical ($r = .25$, $p < .01$) and craft ($r = .24$, $p < .01$) occupations. As with gender, we also tested whether height varies by occupation by computing an interaction between height and a dummy variable for each occupation and then entering the interaction in regressions predicting earnings. The incremental variance explained was relatively small (ranging from .003 [$p < .01$] for professional-technical occupations to .017 [$p < .01$] for blue-collar occupations), although the interaction was not significant in only one case, with sales occupations ($\Delta R^2 = .000$, *ns*).

Discussion

We live in a society where physical appearance matters, not only because it affects how others respond to us but it also affects how we view ourselves. Physical traits clearly play an important role in workplace interactions and outcomes, and there is active literature that focuses on how attractiveness, weight, and body image affect workplace interactions and outcomes (e.g., DeGroot & Motowidlo, 1999; Gilmore, 1986; McElroy, 1999; Pingitore, Dugoni, & Tindale, 1994; Roehling, 1999; Trethewey, 1999).

The present article focused on one of the most obvious aspects of appearance—physical height—and its role in workplace success. Many people are aware of the Napoleon complex and have considered the possibility that height, personality, and behavior may be connected. Although there are decades of empirical research on the topic of height in the workplace, the research has been infrequent and sporadic, and there has been little serious inquiry regarding this topic since the early 1980s. Moreover, results from studies that are conducted often are greeted with a mixture of skepticism and humor by scholars (Keyes, 1980). As Hensley and Cooper (1987) noted in their review of the height–success literature: "While these accounts may draw an amused readership they remain matters of speculation, not science" (p. 844). The haphazard treatment of the height–workplace success topic may be due, in part, to researchers' unwillingness to believe that such a nonperformance-related attribute could play much of a role in performance-oriented environments. However, as Prieto and Robbins (1975) suggested, "Since it can be demonstrated that this culture positively values tall stature, particularly for males, reflected in most advertising, fashion design, athletics, occupational qualifications, leadership, social status, and heterosexual relationships, the consequences of short stature deserve attention from behavioural scientists" (p. 395).

In the present study, we developed a theoretical model of the relationship between physical height and career success, both as a mechanism to draw together existing investigations and as a framework to provide direction for future research in this area. To test some of the general implications of the theoretical model, we then conducted a meta-analysis of the existing literature, and we complemented the meta-analysis with four primary investigations of the linkage between physical height and salary.

First, and perhaps most important, results from our analyses revealed that height clearly matters in the context of workplace success. The overall meta-analytic results, based on 45 independent studies, demonstrated that height has a non-zero association with success ($\hat{\rho} = .26$). Height also was significantly and positively related to earnings in all four of our earnings studies, controlling for sex, age, and weight. In fact, a meta-analysis of our four earnings studies suggested a mean sample-size–weighted validity of .31. Moreover, the unstandardized coefficients suggested that an individual who is 72 in. tall would be predicted to earn almost $166,000 more across a 30-year career than an individual who is 65 in. tall. Our analysis in Study 2 revealed that the effect of height appears to be quite stable over the course of one's career; height does not appear to be an ephemeral advantage that matters only early in life and then dissipates. In general, the combined results presented in this article suggest important, meaningful differences in workplace success depending on physical height. Thus, one important takeaway from this investigation is that the topic of physical height deserves equal footing with other types of physical attributes that garner serious scholarly attention, such as attractiveness and weight.

Moreover, the positive pattern of results revealed by both the meta-analysis and the income studies questions the conclusions of past qualitative reviews of the height–success literature. Specifically, past reviews of the literature have suggested that height affects societal markers of status or success but not actual performance on the job. For example, Hensley and Cooper (1987) noted, "Height is an important attribute in securing a position but it has little effect on job performance" (p. 844), while Hensley and Angoli (1980) suggested, "Perceptual distortion of height is a diminishing occurrence with the magnitude dampening over time with increased interaction" (p. 154). Likewise, Hensley (1993) noted, "There is no evidence that height leads to enhanced job performance" (p. 40).

Although there may be overlap between subjective and objective job performance, the results from our meta-analysis suggest that height may indeed be related to objective performance, although not as strongly as it is related to social esteem or subjective criteria. Specifically, the evidence suggested that height was more predictive of subjective ratings ($\hat{\rho} = .31$) than objective outcomes ($\hat{\rho} = .21$). Thus, consistent with the model, height seems to predict how observers perceive and evaluate others more than it predicts actual performance. Even in the case of objective outcomes, however, the validity of height was comparable to other bellwether predictors of job performance, such as the personality trait of conscientiousness (Hurtz & Donovan, 2000). Although future research clearly is needed, this evidence helps demonstrate the value of empirical, meta-analytic investigations of research literature in addition to qualitative reviews of trends (e.g., Cooper & Rosenthal, 1980).

At one time, height was explicitly considered in hiring decisions (Otis, 1941). What was once explicit may now be implicit, but height nonetheless continues to be a factor in terms of promotions and decisions about pay. In a normative sense, these findings are troubling in that, with the exception of a few occupations (e.g., professional basketball), height cannot be considered an essential ability required for job performance nor a bona fide occupational qualification (BFOQ). Thus, there probably are many types of jobs where the practice of favoring tall individuals amounts to little more than pure bias, such as construction work or back-office professional services (e.g., accounting or legal services). However, the role of height in other types of positions may be somewhere between pure bias and BFOQ, whereby height affects customer decisions and thus affects individual performance and subsequent career success. Thus, in some jobs tall people may have higher levels of performance and career success because customers or other constituents may view them more positively (Frieze et al., 1990). In fact, some initial evidence for this possibility was suggested by our occupational analysis (see Table 5), which indicated greater linkages between height and earnings in occupations where persuasion and negotiation are more critical (e.g., sales, management). Future research is needed to indicate more clearly what jobs benefit from height and the processes through which height affects success on those jobs.

It also is interesting to consider Adler's (1956) concept of the Napoleon complex in the context of the workplace. To the extent that some short individuals overcompensate for their lack of stature with overaggressive, belligerent, or arrogant actions (e.g., Dollard, Doob, Miller, Mowrer, & Sears, 1939), it is possible that aggression may mediate the relationship between height and workplace success. Although one study (Willoughby & Blount, 1985) did reveal that shorter police officers displayed more aggressive behavior than taller officers, there is almost no empirical data on the height–aggressiveness relationship. More research is needed on this topic.

Finally, our results suggest that it is not simply the case that height operates as a proxy for gender, even though men are on average taller than women. Indeed, the results of four earnings studies show that whereas height and gender are correlated, it appears that height has a more important effect on earnings than gender. However, it is likely that firms making human resource decisions based on height will experience disparate impact, given the strong relationship between height and sex (average $r = .65$), and therefore may expose themselves to legal threats.

LIMITATIONS AND STRENGTHS

The research reported here has several limitations that should be noted. First, the overall goal of this article was to open a serious line of scientific inquiry about why height matters in the workplace by developing a general theoretical model of how height influences career success. Although we were able to test some of the general implications of the model and thus demonstrate the importance of the height–workplace success topic, this study does not open the black box between height and workplace success. Future research is needed to investigate the specific mediating processes described in the model, which lead from physical height to social and self-esteem, performance, and career success.

Another limitation is that our meta-analysis inherits the shortcomings of the literature that it summarizes. For example, some of the studies in the literature suggest that demand cues may have existed when the predictor and outcome variables were perceptual and collected together (Roberts & Herman, 1986). To the extent that respondents reported a person's height and then judged the person's performance, "it is hard to imagine subjects not coming to an accurate estimation of the hypothesis being tested" (Roberts & Herman, 1986, p. 134). Although this concern is offset by similar relationships between height and objective criteria, future research is needed to confirm that the validity differences between objective and subjective outcomes are not due to methodological artifacts. Another limitation in the height–workplace success literature is that much past research on this topic has focused on three occupations: police work, academia, and sales (Roberts & Herman, 1986). This limited range of occupations weakens the generalizability of the meta-analytic findings.

Finally, the small number of existing studies on the linkages between height and self-esteem, objective job performance, and subjective job performance limited our ability to examine these relationships in our meta-analysis. For example, although we examined how height relates to objective versus subjective outcomes in this article, it is important for future research to directly study how height affects employees' behaviors and job performance versus how they are perceived by managers and how these linkages vary by occupation.

These limitations are countered by a number of strengths. First, we developed a general theoretical model of how and why height influences career success. Because this type of overarching framework was not available in the literature, it was challenging to draw existing studies together coherently, and it was difficult to see how new studies could be conducted to build upon the literature. We hope that this model will further understanding of the role of height and will pave the way for future studies.

Next, as the first empirical examination of the literature on height and workplace success, this article offers important information about the robustness of effects across many different methodological contexts and outcomes. Thus, our investigation reveals the general strength and variability of the relationships, which is useful because trends in research are difficult to interpret.

The studies on earnings also have methodological advantages. First, height was measured in diverse ways across the four complementary studies, and the relationships between height and income were similar for self-reported versus other-recorded height. Second, in most cases, height was measured well before earnings were measured, therefore addressing a limitation in past research that height and the criteria “are measured almost simultaneously” (Roberts & Herman, 1986, p. 134). Finally, unlike past research that has focused on police work, academia, and sales, the four studies in this manuscript represented the full range of occupations and offer support for the generalizability of the height–success relationship.

CONCLUSION

Theoretically, it is important to understand how and why physical height affects people’s success in the workplace. Practically, it is important for managers to know whether height affects performance because it proxies self-confidence and persuasiveness or whether height acts independently of these processes. The studies presented in this article clearly suggest that physical height affects people’s careers and workplace interactions and therefore is worthy of continued scholarly investigation.

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