THE EFFECTS OF PHYSICAL ATTRACTIVENESS ON JOB-RELATED OUTCOMES: A META-ANALYSIS OF EXPERIMENTAL STUDIES

MEGUMI HOSODA Department of Psychology San Jose State University

EUGENE F. STONE-ROMERO
Department of Psychology
University of Central Florida

GWEN COATS

Department of Psychology
University at Albany, State University of New York

We report the findings of a meta-analytic review of experimental studies concerned with the biasing effect of physical attractiveness on a variety of job-related outcomes. In support of implicit personality theory, attractive individuals were found to fare better than unattractive individuals in terms of a number of such outcomes. The weighted mean effect size, d, was .37 for all studies. In addition, tests for moderating effects showed that (a) the attractiveness bias did not differ between studies that provided low versus high amounts of job-relevant information about the targets, (b) the same bias was greater for within-subjects research designs than for between-subjects designs, (c) professionals were as susceptible to the bias as were college students, (d) attractiveness was as important for men as for women, and (e) the biasing effect of attractiveness has decreased in recent years. Implications of these findings are considered.

Over the past few decades, numerous individual studies and several meta-analytic reviews have shown that physical attractiveness is important in the U.S. More specifically, the same studies have demonstrated that there is a positive correlation between physical attractiveness (referred to hereinafter as attractiveness) and a host of outcomes. For example, attractiveness has been shown to influence, among other variables, initial impressions (Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992; Jackson, Hunter, & Hodge, 1995), date and mate selection decisions (e.g., Adams, 1977), helping behavior (e.g., Benson, Karabenick, & Lerner, 1976), teacher judgments of student intelligence

We thank the three anonymous reviewers for their helpful comments and suggestions on an earlier version of this article.

Correspondence and requests for reprints should be addressed to Megumi Hosoda, Department of Psychology, San Jose State University, One Washington Square, San Jose, CA 95192-0120; mhosoda@email.sisu.edu.

and future academic potential (e.g., Ritts, Patterson, & Tubbs, 1992), voters' preferences for political candidates (e.g., Adams, 1977), and jurors' judgments in simulated trials (Mazzella & Feingold, 1994). Moreover, the results of a recent meta-analysis (Langlois, Kalakanis, Rubenstein, Larson, Hallam, & Smoot, 2000) have shown that the effects of physical attractiveness are robust and pandemic, extending beyond initial impressions of strangers to actual interactions with people. Langlois et al. (2000) further concluded that the benefits of attractiveness are large enough to be "visible to the naked eye," and that they are of considerable practical significance.

The benefits of attractiveness have also been shown in the occupational domain. Evidence of an attractiveness bias in work settings has been reported in a number of non-meta-analytic, narrative reviews (e.g., Bull & Rumsey, 1988; Jackson, 1992; Morrow, 1990; Stone, Stone, & Dipboye, 1992). Overall, what these reviews suggest is that relative to less attractive individuals, attractive people tend to fare better in terms of such criteria as perceived job qualifications (e.g., Dipboye, Fromkin, & Wiback, 1975; Quereshi & Kay, 1986), hiring recommendations (e.g., Cann, Siegfried, & Pearce, 1981; Gilmore, Beehr, & Love, 1986), predicted job success (Morrow, McElroy, Stamper, & Wilson, 1990), and compensation levels (e.g., Frieze, Olson, & Russell, 1991; Roszell, Kennedy, & Grabb, 1989). In addition, sex differences have been observed in the effects of attractiveness on job-related outcomes. However, the direction of such differences has been equivocal (e.g., Jackson, 1992). Furthermore, a variety of factors (e.g., occupational sexlinkage, job type) have been shown to moderate the relationship between attractiveness and job-related outcomes (e.g., Jackson, 1992).

Given a bias against physically unattractive individuals on a variety of job-related outcomes, Stone et al. (1992) argued that attractiveness is an important factor that deserves more attention than it has received thus far in organizational research. In addition, several researchers (e.g., Morrow et al., 1990, Stone et al., 1992) asserted that although attractiveness may not be the most important determinant of personnel decisions, it may be the deciding factor when decision makers are faced with difficult choices among job applicants or incumbents who possess similar levels of qualifications or performance.

In view of these considerations and Langlois et al.'s (2000) conclusion that attractiveness effects have practical significance, we conducted a meta-analysis concerned with the attractiveness bias in simulated employment contexts. We used implicit personality theory (e.g., Ashmore, 1981) and a lack of fit model (Heilman, 1983) to explain how attractiveness influences job-related outcomes. These theories were used because they offer predictions not only about the relationship between attractive-

ness and job-related outcome variables, but also about potential moderators of the same relationship. However, we agree with Langlois et al.'s (2000) assertion that no single theory is likely to offer a complete explanation of attractiveness effects; instead, extant theories should be viewed as complementary, rather than competitive in explaining such effects.

The following section provides a summary of social cognition perspectives on the effects of stereotypes on person perception. In addition, it offers brief explanations of implicit personality theory and the lack of fit model as well as predictions stemming from these two theoretical perspectives.

Theoretical Perspectives on the Relationship Between Physical Attractiveness and Job-Related Outcomes

Research on social cognition (e.g., Fiske & Neuberg, 1990; Fiske & Taylor, 1991; Hamilton, Stroessner, & Driscoll, 1994) shows that individuals initially categorize a target person on the basis of available physical cues (e.g., race, sex, attractiveness, age). Once categorized, expectations associated with the category are activated, and the target person is judged on the basis of these category-based expectations. Both implicit personality theory (e.g., Ashmore, 1981) and the lack of fit model (Heilman, 1983) assume that attractiveness evokes stereotype-based expectations and that individuals are evaluated on the basis of such expectations.

Information Used in Impression Formation

When individuals form impression of others, they typically rely on two types or sources of information: (a) knowledge of a target's category membership, and (b) details of his or her individuating characteristics (Pendry & Macrae, 1994). Because of this, one focus of impression formation research has been on determining the extent to which these two types of information affect ultimate impressions of targets (Pendry & Macrae, 1994). Two impression formation models, that is, the continuum model (Fiske & Neuberg, 1990) and dual process model (Brewer, 1988), have guided research on this issue. Both such models agree that perceivers initially categorize a target on the basis of readily apparent physical cues (Pendry & Macrae, 1994). However, Brewer's (1988) dual process model suggests that perceivers choose between two alternative processing modes, that is, category-based and person-based. Perceivers use person-based strategies if they are motivated to attend to the target, but choose category-based strategies if the target is of little interest to them (Pendry & Macrae, 1994).

In contrast, Fiske and Neuberg's (1990) continuum model suggests that individuals' impressions of targets fall along a single impression for-

mation continuum. At opposite ends of it are (a) stereotype-based evaluations of individuals and (b) individuated responses to individuals. The model assumes that (a) stereotype-based responses have priority over individuated judgments, and (b) movement along the continuum, from stereotype-based to individuated responses, is a function of interpretational, motivational, and attentional factors (Pendry & Macrae, 1994). Moreover, in general, factors that increase the cost of forming incorrect impressions (e.g., outcome dependency, motivation to be accurate, accountability for judgment, self-presentational concerns, fear of invalidity) motivate perceivers to use individuating response strategies, but factors that increase the cost of being indecisive (e.g., time pressure, need for closure, cognitive load) motivate perceivers to rely on stereotype-based strategies (Fiske & Taylor, 1991; Pendry & Macrae, 1994).

Implicit Personality Theory

According to Ashmore (1981; Ashmore & Del Boca, 1979; Ashmore, Del Boca, & Wohlers, 1986), implicit personality theory is a hypothetical cognitive structure that comprises personal attributes (e.g., personality traits) and the set of expected relations (i.e., inferential relations) between and among them. Stereotypes are implicit personality theories in which group membership is one of the personal attributes that is associated inferentially with other personal attributes (Ashmore, 1981). Eagly et al. (1991) applied implicit personality theory to understand the physical attractiveness stereotype, and argued that the social categories of "attractive" and "unattractive" were linked inferentially to a variety of personality dimensions.

Substantial empirical evidence and three meta-analyses have firmly established the existence and validity of a "what-is-beautiful-is-good stereotype" (e.g., Dion, Berscheid, & Walster, 1972; Eagly et al., 1991; Feingold, 1992; Jackson et al., 1995). For example, meta-analyses by Eagly et al. (1991) and Feingold (1992) showed that attractiveness has (a) a strong effect on perceptions of social competence, social skills, and sexual warmth, (b) a moderate effect on perceptions of intellectual competence, potency, adjustment, dominance, and general mental health, and (c) a weak effect on perceptions of integrity and concern for others. In addition, sex-of-target differences were observed for the perceptions of sexual warmth and intellectual competence. More specifically, the effects of attractiveness on perceptions of sexual warmth were stronger for women than for men (Feingold, 1992). However, the effects of attractiveness on perceptions of intellectual competence were stronger for men than for women (Jackson et al., 1995).

Furthermore, more recent meta-analyses (Langlois et al., 2000) have shown that (a) following actual interaction with others, perceivers judge attractive individuals more positively (e.g., in terms of interpersonal competence, occupational competence, social appeal, adjustment) and treat them more favorably (e.g., visual/social attention, positive interaction, reward, help/cooperation, acceptance) than less attractive individuals, and (b) attractive individuals experience more positive outcomes in life (e.g., occupational success, popularity, dating experience, sexual experience, physical health) than less attractive individuals.

Thus, implicit personality theory predicts that as a result of a generally positive stereotype associated with attractiveness, decisions makers (e.g., employment interviewers, managers) will judge attractive individuals more positively than less attractive individuals. Consistent with this, our meta-analysis tested the following hypothesis:

Hypothesis 1: Attractive individuals will be judged and treated more positively with regard to job-related outcomes than unattractive individuals.

Lack of Fit Model

Heilman (1983) originally developed a lack of fit model to explain occupational sex bias and applied this model to explain the attractiveness bias in the workplace. According to the same model, a perceiver makes inferences about attributes and characteristics of an individual based upon stereotypes (e.g., sex, attractiveness), and then evaluates the individual on the degree to which these attributes match the perceived requirements of a job. A bias results when there is a poor fit between the perceived attributes of an individual and the perceived requirements of a job. The larger the incongruity between these two perceptions, the more that failure is anticipated and the greater the resulting bias.

Attractiveness has been shown to exaggerate the perception of sextyping (e.g., Gillen, 1981; Heilman & Saruwatari, 1979, Heilman & Stopeck, 1985a). That is, attractive men are believed to possess more of traditionally masculine qualities than less attractive men, and attractive women are believed to possess more of traditionally feminine qualities than less attractive women. According to the lack of fit model, it follows that whether attractiveness is an asset or a liability depends on both the sex of targets and sex-type of job: Attractiveness will be a hindrance for women in stereotypically masculine jobs because (a) attractive women are seen as possessing more feminine traits than less attractive women, (b) stereotypically masculine traits are assumed to be a requisite for success in masculine jobs, and, thus, (c) highly feminine women are not viewed as being suitable for masculine jobs (i.e., there is a lack of fit

between the two). Thus, the lack of fit model predicts that for stereotypically masculine jobs, attractiveness should be an asset for men but not for women. Conversely, for stereotypically feminine jobs, attractiveness should be an asset for women but not for men. Thus, the same model predicts that attractiveness will interact with sex and the sex-type of job to influence job-related outcomes.

Heilman and her colleagues (Heilman & Saruwatari, 1979; Heilman & Stopeck, 1985a) have shown that although attractiveness is a liability for women who apply or hold stereotypically masculine jobs, men are not affected by a lack of fit because attractive men are seen as having the potential to be successful in either masculine or feminine jobs. However, it should be noted that Heilman's studies are the only ones that have reported the adverse effects of attractiveness for women (Jackson, 1992).

Despite empirical evidence that attractiveness enhances the perception of sex-typing (e.g., Gillen, 1981; Heilman & Saruwatari, 1979), sextyped traits (e.g., masculinity, femininity) were not included in meta-analytic reviews by Eagly et al. (1991), Feingold (1992), or Langlois et al. (2000). Thus, Jackson (1992) contended that it may be unjustified and misleading to conclude that men and women of similar attractiveness are similarly perceived and judged, and suggested that attractiveness might have different effects for men and women when sex-typed traits are relevant to judgments. In view of the foregoing, our meta-analysis tested the following hypothesis:

Hypothesis 2: Attractiveness will interact with sex and sex-typing of job in affecting job-related outcomes. In particular, attractiveness will be a liability for women who apply for or hold a stereotypically masculine job.

Additional Predictions

Job-relevant information. Research has shown that stereotypes have their greatest influences on judgments or evaluation when the amount and type of information provided about a target is limited (e.g., Locksley, Borgida, Brekke, & Hepburn, 1980; Locksley, Hepburn, & Ortiz, 1982). However, it has also been shown that individuals place little or no reliance on stereotypes when information about the target is clearly and unambiguously judgment relevant (Fiske & Taylor, 1991). For example, a meta-analysis by Tosi and Einbender (1985) showed that sex bias was greatly reduced when more job-relevant information was provided than when less job-relevant information was provided the following hypothesis.

Hypothesis 3: The effects of attractiveness on various job-related outcomes will be stronger when individuals lack job-relevant (individuating) information about the target than when they have such information.

Within- versus between-subjects research designs. Eagly et al. (1991) demonstrated that attractiveness effects were stronger for within-subjects designs than for between-subjects designs. They argued that exposure to multiple individuals of differing levels of attractiveness in within-subjects studies probably induces a perceptual contrast effect in which attractive individuals are seen as more attractive and unattractive ones as less attractive than they would be otherwise; that is, perceptual contrast effects lead to more extreme attractiveness-based judgments. Moreover, Olian, Schwab, and Haberfeld (1988) reported that within-subjects designs resulted in stronger gender discrimination effects than between-subjects designs. Therefore, our meta-analysis tested the following hypothesis:

Hypothesis 4: The effects of attractiveness on various job-related outcomes will be stronger for research using within-subjects designs than for research using between-subjects designs.

Research Questions

Our meta-analysis also provided answers to several research questions. These are considered below.

Type of study participant/type of research setting. A frequent criticism of experimental research concerned with personnel-related decision making is that because such research has relied primarily on the use of college students as participants, its results may not be generalizable to people who actually make personnel decisions in organizational contexts (e.g., Morrow et al., 1990). For example, although research by Bernstein, Hakel, and Harlan (1975) showed that students' ratings of job applicants were nearly identical to those of professional interviewers. Gordon, Slade, and Schmitt (1986) argued that college students were unacceptable surrogates for real decision makers. However, in view of the fact that the attractiveness bias has been reported in realistic settings with real decision makers (e.g., Frieze et al., 1991; Roszell et al., 1989), it appears to be other than an artifact of laboratory-based research using student participants (Stone et al., 1992). Consistent with this view, Olian et al.'s (1988) meta-analysis on gender discrimination in hiring decisions in simulated employment settings found that professional decision makers were as susceptible to gender discrimination as were students.

In view of the above, we have no reason to expect other than a positive relationship between attractiveness and various job-related outcomes across two types of study participants: (a) organizational decision makers and (b) student surrogates, that is, students performing in the role of organizational decision makers. However, it may be the case that the strength of this relationship differs somewhat across these two types of research participants. Thus, we explored this issue through meta-

analytic means. More specifically, we addressed the following research question:

Research Question 1: Does the strength of the effect of attractiveness on various outcomes differ between organizational decision makers and students operating in the role of organizational decision makers?

It deserves adding that *laboratory-based* experimental research on attractiveness typically involves the use of student participants, whereas *field-based* experimental research almost always involves actual personnel specialists. Thus, the answer to the above question also provides suggestive evidence on the strength of the relationship between attractiveness and job-related outcomes across research contexts (i.e., laboratory experiments versus field experiments). However, it is important to recognize that if an effect is found for research setting (i.e., the variable that we were able to code in the meta-analysis), the actual effect is no doubt attributable to the type of research participant (i.e., students versus organizational decision makers).

Sex of target. The available evidence (Eagly et al., 1991; Feingold, 1992) shows that the strength of the attractiveness stereotype does not differ as a function of the sex of targets. Furthermore, Langlois et al. (2000) reported that the strength of attractiveness effects for judgment and treatment was similar for both male and female targets. However, Jackson et al. (1995) found that attractiveness had stronger effects on perceptions of the intellectual competence of men than of women. According to Jackson et al., these inconsistent findings might be due to the fact that Eagly et al. (1991) and Feingold (1992) excluded studies of perceived and actual competence in the occupational domain, a domain stereotypically associated with a male, whereas Jackson et al. (1995) included studies that measured intellectual competence in the occupational domain. Therefore, we examined if there is a sex difference in the strength of the attractiveness bias in organizational settings. More specifically, we addressed the following research question:

Research Question 2: Does the magnitude of the attractiveness bias differ as a function of target sex?

Publication period. The majority of studies on attractiveness have been published during 1970s and 1980s. However, it is not known if the magnitude of the attractiveness effect has changed over the years. The magnitude of the same effect on employment-related decisions might have remained relatively constant over the years because the implicit theories of decision makers about the correlates of attractiveness may have remained relatively constant over time. Alternatively, the magnitude of

the effect might have decreased over the years because decision makers might have become aware of the attractiveness bias and manifested a lesser willingness to allow it to serve as a basis for decision making. Therefore, we explored this issue in our meta-analysis. We did so by assessing the extent to which the relationship between attractiveness and various outcomes differs over several 5-year periods (see below). Note that we used 5-year intervals, as opposed to 1-year intervals, because of the fact that the greater the number of observations considered by estimates of central tendency (i.e., of effect size), the greater the stability of such estimates. The study question that we addressed was:

Research Question 3: Does the magnitude of the attractiveness effect differ across 5-year time intervals?

Type of job-related outcomes. Finally, as mentioned above, Eagly et al. (1991) and Feingold (1992) found that the strength of the physical attractiveness stereotype varied as a function of evaluative beliefs. Relatedly, we explored the issue of whether the effect of the attractiveness bias differed as a function of type of the job-related outcome (e.g., hiring, promotion, performance evaluation). More specifically, our meta-analysis addressed the following research question:

Research Question 4: Does the magnitude of the attractiveness bias effect differ across various job-related outcomes?

Contributions of the Present Meta-Analysis

It deserves stressing that our meta-analytic review is not redundant with meta-analytic reviews conducted by Jackson et al. (1995), and by Langlois et al. (2000), both of which included studies that examined the effects of attractiveness in the occupational domain. More specifically, the meta-analysis of Jackson et al. showed that attractiveness had a strong effect on the perceptions of intellectual competence. Although their measures of intellectual competence included both academic and occupational competence, they failed to compute separate effect size estimates for these two types of competence. Likewise, Langlois et al. (2000) reported that attractiveness had a strong effect for judgments of occupational competence in actual interactions. However, their effect estimates were based on a rather small number (i.e., five) of studies. In contrast, the present meta-analysis used results from a larger number of studies. Furthermore, unlike Jackson et al. (1995) and Langlois et al. (2000), our meta-analysis used a broader set of job-related outcomes, including selection, performance evaluation, and hiring decisions.

Method

Sample of Studies

Two basic procedures were used to obtain the data upon our metaanalysis was based. First, computer-based searches were conducted using the keyword physical attractiveness, combined with such keywords as selection, evaluation, promotion, management, professional, job applicant, and performance evaluation in the following computerized data bases for the periods noted: PsychINFO (Psychological Abstracts; 1967 to 2000), Sociological Abstracts (1963 to 2000), and ERIC (Educational Resources Information Center; 1966 to 2000). Second, we searched the reference lists of all the primary studies, review articles (e.g., Eagly et al., 1991; Morrow, 1990; Stone et al., 1992), and books (e.g., Bull & Rumsey, 1988; Hatfield & Sprecher, 1986; Jackson, 1992; Langlois, 1986) concerned with attractiveness issues. The initial search produced 76 studies for potential inclusion in the meta-analysis.

In order for studies to be included in our meta-analysis, we used two decision rules: (a) the attractiveness of the target had to be a manipulated variable, and (b) one or more of the study's dependent variables had to be a rating of the target on outcomes concerned with either access to jobs (e.g., hiring decisions, qualification ratings) or job-related treatment (e.g., promotions, performance evaluation). We used these criteria because we were interested in assessing the causal relationship between physical attractiveness and a variety of job-related outcomes. In view of the same criteria, a number of primary studies were excluded from the meta-analysis because they did not manipulate the physical attractiveness of targets (e.g., Dickey-Bryan, Lautenschlager, Mendoza, & Abrahams, 1986; Raza & Carpenter, 1987; Riggio & Throckmorton, 1988; Roszell et al., 1989; Udry & Eckland, 1984). Furthermore, studies that focused on other aspects of job-related evaluations (e.g., causal attributions; Heilman & Stopeck, 1985b) were eliminated. As a result of using the just-noted selection criteria, the initial pool of 76 primary studies was reduced to 27.

Coding of Study-Related Variables

For each primary study, we coded the following information: (a) sex of target (i.e., male, female, both), (b) sex-type of job (i.e., masculine, feminine, neutral, unknown), (c) the combination of sex of target and sex-type of job (i.e., target/sex types of male/masculine, male/feminine, male/neutral, female/masculine, female/feminine, female/neutral), (d) relevance of job information (i.e., low, high), (e) type of research participant (i.e., college student, professional, both), (f) setting of the ex-

periment (i.e., laboratory, field, both), (g) type of research design (i.e., within-subjects, between-subjects), (h) type of job-related outcome (i.e., suitability ranking, hiring decision, promotion decision, predicted success, suitability rating, employment potential, choice as a business partner, performance evaluation), (i) publication year and publication period (i.e., 1975–1979, 1980–1984, 1985–1989, 1990–1994, 1995–1999), and (j) evidence on the effectiveness of the attractiveness manipulation (i.e., pretest of manipulation and manipulation check, pretest of manipulation and no manipulation check, no clear information on pretest). These variables were coded separately by the first and third authors. The coding procedure revealed that there was nearly complete (about 98%) agreement on virtually all coding. The few instances of disagreement were resolved by discussion.

Two other issues related to the coding of studies deserve consideration. The first has to do with the way we coded the combination of the sex of target and sex-type of a job. In many studies, information about the sex-type of a job was obvious from the manipulations that were used. When the information about the sex-type of a job was not available, the first and third authors coded it separately. There was complete agreement on the sex-types of jobs.

The second issue concerns the coding of the relevance of job information that was provided to study participants. We coded a study as providing low job-relevant information when participants were given information that was not relevant or useful in making job-related decisions (e.g., an applicant's hobbies). We coded a study as providing high job-relevant information when participants were provided with information that was relevant in making job-related decisions (e.g., relevant past work experience, interview transcripts, performance reviews, relevant college major). Note that the judgment about the relevance of information was determined by the quality of information provided to participants, not by the amount of information provided.

Computation and Analysis of Effect Size Estimates

The initial step in the meta-analysis was to compute a g, standard effect size estimate (Hedges & Olkin, 1985). In this study, g is the difference between the means of physically attractive and less attractive groups on outcomes divided by the relevant denominator for the effect size estimate: For any given primary study, this was either (a) the pooled standard deviation when attractiveness was a between-subjects variable, or (b) the standard deviation of the differences when attractiveness was a within-subjects variable. The sign of the difference between means was positive when attractive targets were rated more positively on job-related

outcomes than less attractive targets and *negative* when less attractive targets were rated more positively than attractive targets on the same outcomes.

Although an effort was made to extract as much information as possible from each primary study, not all the studies reported the information needed for specific meta-analytic comparisons: For example, some studies had targets of only one sex. In addition, other studies reported only the main effects of attractiveness, as opposed to interactive effects of attractiveness, sex, or sex-type of job. Therefore, based on the 27 studies, we were able to compute $62\ g$ estimates. These estimates were based upon (a) means and standard deviations for 41 effects, (b) F statistics for 14 effects, (c) proportions for two effects, (d) t statistics for two effects, (e) significance levels (p values) for two effects, and (f) a chi square statistic for one effect.

Analysis of effect size estimates. Because the g index tends to overestimate the magnitude of population effect size, especially when samples are small, the gs derived from the primary study data were converted to ds (Hedges & Olkin, 1985). These ds were then combined to estimate both (a) unweighted mean effect size estimates and (b) sample size weighted mean effect size estimates. In addition, a homogeneity statistic, Q (Hedges & Olkin, 1985), was calculated to determine if each set of ds shared a common population effect size, that is, the effect size estimates were homogeneous or consistent across the studies. Q has a distribution that is approximately chi-square with k-1 degrees of freedom, where k is the number of effect size estimates (Hedges & Olkin, 1985).

In cases where the Q statistic suggested a lack of effect size homogeneity, we sought study characteristic correlates (moderators) of the effect size indices (ds). More specifically, a categorical model was used to determine the relation between the study attributes (as categories) and the magnitude of effect size estimates (Hedges & Olkin, 1985). Categorical models provide (a) a between-category effect size estimate that is analogous to a main effect in analysis of variance, and (b) a test of the homogeneity of the effect size estimates within each category (see Hedges & Olkin, 1985, for computational details).

The between-category effect is estimated by Q_B , which has an approximate chi-square distribution with p-1 degrees of freedom, where p is the number of classes. The homogeneity of the effect size estimates within each category (i) is estimated by Q_{Wi} , which has an approximate chi-square distribution with m-1 degrees of freedom, where m is the number of effect size estimates in the category. Tests of categorical models also provide estimates of the mean weighted effect size and 95% confidence intervals for each category. The latter estimates can be used to determine if within-category effect size estimates differ from zero.

Other analysis-related issues. As noted above, our meta-analysis used information on 62 effect sizes derived from 27 articles. Thus, two issues merit consideration. First, when effect sizes for two or more dependent variables from a given study are used in a meta-analysis, to the degree that the dependent variables (e.g., job-related outcomes) are correlated (nonindependent), the use of the multiple effect size estimates (as opposed to a composite of the variables) will result in an underestimate of the relationship between an independent variable (e.g., attractiveness) and the composite dependent variable (see Rosenthal & Rubin, 1986). Note that this issue is not relevant to the present meta-analysis. Although it considered several different types of outcomes, for any given primary study, there was no instance in which we used effect size estimates for more than a single outcome for any given primary study.

The second issue that deserves consideration is the possible difference in sample-size weighted versus unweighted effect size estimates. To the degree that these estimates differ from one another, concerns might arise about (a) the appropriateness of the estimate of the average effect size for the set of studies and (b) the statistical test for significance of the average effect size (Hunter, Schmidt, & Jackson, 1982). For example, if a large number of large effect size estimates were derived from studies that had small sample sizes, the average unweighted sample size effect size estimate for the set of studies would be upwardly biased. Thus, one strategy for assessing whether this is a problem is to compare the sample-size weighted effect size estimate against its unweighted counterpart.

Results

Tests of Hypotheses

Overall effect of attractiveness. The d values for each of the 62 effect size estimates derived from the primary studies are listed in Table 1. Table 2 summarizes the results for the effects of attractiveness on the job-related outcomes.

As can be seen in Table 1, for the 62 effect size estimates there was a positive relationship between attractiveness and the measured outcomes in 55 of 62 instances. In addition, as the results in Table 2 reveal, for the set of 62 effects the weighted and the unweighted mean effect size estimates were .37 and .37, respectively: Attractive individuals fared better than their less attractive counterparts in terms of a variety of jobrelated outcomes. Note, moreover, that the 95% confidence around the d of .37 extended from .32 to .41. The fact that the same interval does not contain the value of 0 indicates that the overall attractiveness effect is not chance based. These findings provide strong support for Hypothesis 1.

TABLE 1
Effect Size Estimates (d) for Each Study

			Sex of	Type of research		
Study	Year	n^a	target	design ^b	Type of outcome	q
1. Abramowitz & O'Grady	(1991)	08	Male	W	Ranking	+0.38
2. Abramowitz & O'Grady	(1991)	(80)	Female	M	Ranking	+0.38
3. Bardack & McAndrew	(1985)	226	Female	В	Hiring	+0.56
4. Beehr & Gilmore	(1982)	96	Male	В	Hiring	+0.25
5. Cann, Siegfried, & Pearce	(1881)	159	Both	В	Hiring	+0.39
6. Cash, Gillen, & Burns	(1977)	12	Male	В	Hiring	+0.24
7. Cash, Gillen, & Burns	(1977)	12	Female	В	Hiring	-0.32
8. Cash, Gillen, & Burns	(1977)	12	Male	В	Hiring	-0.19
9. Cash, Gillen, & Burns	(1977)	12	Female	æ	Hiring	+0.25
10. Cash, Gillen, & Burns	(1977)	12	Male	В	Hiring	+0.05
11. Cash, Gillen, & Burns	(1977)	12	Female	В	Hiring	+0.25
12. Cash & Kilcullen	(1985)	Z	Male	W	Hiring	+1.57
13. Cash & Kilcullen	(1985)	<u>\$</u>	Female	×	Hiring	+0.50
14. Chung & Leung	(1988)	9	Both	≱	Promotion	+0.62
15. Croxton, Van Rensselaer, Dutton, & Ellis	(1989)	30	Male	В	Predicted success	+0.12
16. Croxton, Van Rensselaer, Dutton, & Ellis	(1989)	30	Female	В	Predicted success	+0.01
17. Croxton, Van Rensselaer, Dutton, & Ellis	(1989)	30	Male	В	Predicted success	+0.30
18. Croxton, Van Rensselaer, Dutton, & Ellis	(1989)	30	Female	æ	Predicted success	+0.24
19. Croxton, Van Rensselaer, Dutton, & Ellis	(1989)	30	Male	Д	Predicted success	+0.32
20. Croxton, Van Rensselaer, Dutton, & Ellis	(1989)	99	Female	Я	Predicted success	+0.17
21. Dipboye, Arvey, & Terpstra	(1977)	96	Male	≱	Hiring	+0.66

TABLE 1 (continued)

			Sex of	Type of research		
Study	Year	n	target	design	Type of outcome	p
22. Dipboye, Arvey, & Terpstra	(1977)	(96)	Female	W	Hiring	+0.76
23. Dipboye, Fromkin, & Wiback	(1975)	9	Male	×	Suitability	+0.62
24. Dipboye, Fromkin, & Wiback	(1975)	(0 9)	Female	≱	Suitability	+0.61
25. Drogosz & Levy	(1996)	8	Male	×	Performance evaluation	+0.21
26. Drogosz & Levy	(1996)	(0 9)	Female	A	Performance evaluation	+0.16
27. Drogosz & Levy	(1996)	9	Male	∌	Performance evaluation	+0.10
28. Drogosz & Levy	(1996)	(09)	Female	≱	Performance evaluation	+0.01
29. Drogosz & Levy	(1996)	9	Male	×	Performance evaluation	+0.25
30. Drogosz & Levy	(1996)	(09)	Female	≽	Performance evaluation	+0.20
31. Gilmore, Beehr, & Love	(1986)	225	Both	В	Hiring	+0.28
32. Greenwald	(1981)	30	Female	≱	Hiring	+0.06
33. Heilman & Saruwatari	(1979)	23	Male	*	Hiring	+1.01
34. Heilman & Saruwatari	(1979)	(23)	Female	≽	Hiring	-0.74
35. Heilman & Saruwatari	(1979)	77	Male	≉	Hiring	+0.60
36. Heilman & Saruwatari	(1979)	(22)	Female	×	Hiring	+1.06
37. Heilman & Stopeck	(1985a)	17	Male	M	Promotion	-0.14
38. Heilman & Stopeck	(1985a)	(17)	Female	W	Promotion	-0.83
39. Heilman & Stopeck	(1985a)	16	Male	M	Promotion	-0.32
40. Heilman & Stopeck	(1985a)	(16)	Female	M	Promotion	+0.85
41. Hui & Yam	(1987)	48	Female	M	Hiring	+0.42
42. Jackson	(1983a)	108	Both	В	Potential	+0.44
43. Jackson	(1983b)	118	Both	В	Hiring	+0.18

TABLE 1 (continued)

			Sex of	Type of research		
Study	Year	n°	target	design	Type of outcome	Ф
44. Johnson & Roach-Higgins	(1987)	300	Female	В	Hiring	+0.17
45. Kushnir	(1982)	133	Male	A	Choice	+0.75
46. Kushnir	(1982)	(133)	Female	Μ	Choice	+0.59
47. Marlow, Schneider, & Nelson	(1996)	112	Male	×	Suitability	+0.28
48. Marlow, Schneider, & Nelson	(1996)	(112)	Female	M	Suitability	+0.36
49. Marshall, Stamps, & Moore	(1998)	281	Male	≯	Hiring	+0.13
50. Marvelle & Green	(1980)	10	Male	В	Hiring	+1.36
51. Marvelle & Green	(1980)	10	Female	В	Hiring	+0.16
52. Marvelle & Green	(1980)	10	Male	В	Hiring	-0.12
53. Marvelle & Green	(1980)	10	Female	В	Hiring	+1.07
54. Miller & Routh	(1985)	152	Both	M	Hiring	+0.23
55. Morrow, McElroy, Stamper, & Wilson	(1990)	9	Both	Μ	Promotion	+0.33
56. Quereshi & Kay	(1986)	20	Both	W	Hiring	+0.95
57. Quereshi & Kay	(1986)	20	Both	Μ	Hiring	+1.46
58. Quereshi & Kay	(1986)	20	Both	Μ	Hiring	+1.49
59. Sigelman, Thomas, Sigelman, & Ribich	(1986)	106	Male	M	Ranking	+0.42
60. Sigelman, Thomas, Sigelman, & Ribich	(1986)	(106)	Female	×	Ranking	+0.10
61. Sigelman, Thomas, Sigelman, & Ribich	(1986)	102	Male	×	Ranking	+0.62
62. Sigelman, Thomas, Sigelman, & Ribich	(1986)	(102)	Female	×	Ranking	+0.25

^a A number in a parenthesis is a sample size in a repeated measures design. Thus, these parenthesized numbers were not included in the computation of the number of study participants.

^b B = Between-subjects design. W = Within-subjects design

Estimate or value	All effect size estimates	Excluding outlier effect size estimates
Number of effect size estimates, k	62	54
Number of study participants, n	3,207	2,554
Mean weighted effect size estimate, d	.37	.34
95% confidence interval for d	+.32 to $+.41$	+.29 to +.39
Homogeneity of effect size estimates (Q) comprising d	176.02***	72.11
Mean unweighted effect size estimate (mean d)	.37	.34

TABLE 2

Overall Effect of Attractiveness

***p < .001

As shown in Table 2, the Q statistic for the set of 62 effect size estimates (i.e., 176.02, p < .001) shows that they are *not* homogeneous. Thus, consistent with the procedures outlined by Hedges and Olkin (1985), we identified eight (13%) effect size outliers: These outlier estimates of effects came from the studies of Cash and Kilcullen (1985), Heilman and Saruwatari (1979), Heilman and Stopeck (1985), Quereshi and Kay (1986; two effects), Kushnir (1982), Dipboye, Arvey, and Terpstra (1977), and Marshall, Stamps, and Moore (1998). An examination of these estimates indicated that they were outliers because they were considerably higher than the rest of the estimates.

A meta-analysis based upon the exclusion of the eight outliers revealed a mean sample-size weighted effect size estimate of .34, and a 95% confidence interval extending from .29 to .39 (see Table 2). However, in view of the facts that (a) the mean weighted effect sizes for the analysis involving 62 effect sizes (mean d = .37) and the analysis excluding the outliers (mean d = .34) did not differ greatly from one another, and (b) the confidence intervals for the same two sets of effect sizes overlapped greatly, we concluded that the weighted mean effect size for attractiveness falls within an interval that extends from .34 to .37.

As can be seen in Table 3, the strength of the attractiveness bias did not differ as a function of the combination of sex of target and sex-type of job, Q=3.56, p>.05. Our results show that physical attractiveness is always an asset for both male and female targets, regardless of the sex-type of the job for which they applied or held. The effect size estimates for attractiveness were all positive for both male and female targets, and were in between the values of .30 and .45. Thus, the present study's results failed to provide support for Hypothesis 2.

Job-relevant information. The strength of the attractiveness effect did not vary as a function of the presence of job-relevant information, $Q=3.49,\ p=.06$. Failing to provide support for Hypothesis 3, the mean weighted effect size estimates showed the attractiveness bias did

TABLE 3
The Attractiveness Bias and Primary Study Attributes

Retween-classes effects (On)			Mean weighted effect	95% CI for d _i	I for d	Homogeneity within
DOINGE CHESCH CITIZED (ACB)	ш	n	size estimate (d_i)	Lower	Upper	each class (Qw_i)
Sex of target and sex-type of joba						3.56
Male target, masculine job	12		0.39	0:30	0.49	59.87***
Male target, feminine job	7		0.33	0.15	0.51	12.04
Male target, neutral job	9		0.45	0.31	0.60	8.99
Female target, masculine job	12		0.32	0.21	0.43	43.77***
Female target, feminine job	6		0.30	0.14	0.45	13.16
Female target, neutral job	5		0.41	0.25	0.57	4.47
Job-relevant information						3.49
Low	21 1,	,249	0.44	0.35	0.52	***89.09
High	41 1,	1,958	0.34	0.28	0.39	111.85***
Type of research design						5.82**
Between-subjects	23 1,	1,524	0.26	0.17	0.36	14.63
Within-subjects	39 1,	683	0.40	0.34	0.45	155.58***
Type of participant ^b						3.88
College students	41 1,	,515	0.40	0.33	0.46	136.12***
Professionals	18 1,	,407	0.31	0.23	0.38	32.82*
Both	6	285	0.45	0.27	0.64	3.21
Sex of target ^a						2.80
Male	25		0.40	0.32	0.47	81.97***
Female	27		0.32	0.24	0.39	64.34***
Both	10		0.40	0.29	0.52	26.92**

TABLE 3 (continued)

Attributes and class		.: ::i	Mean weighted effect	95% CI for d _i	l for d;	Homogeneity within
Between-classes effects (QB)	u u	!	size estimate (d _i)	Lower	Upper	each class (Qwi)
Publication period						23, 31***
1975–1979	14 27		0.54	0.41	19'0	36.27***
1980–1984	11 68	4	0.48	0.36	0.60	15.74
1985–1989	25 1,557	7	0.38	0:30	0.45	***69.96
1990–1994	3 12	0	0.37	0.17	0.57	0.05
1995–1999	9 573	Ę.	0.19	0.09	0.28	3.96
Type of job-related outcome						24.05**
Ranking	6 288	∞	0.36	0.24	0.47	7.72
Hiring decision	31 2,012	2	0.39	0.31	0.46	117.99***
Promotion	6 134	4	0.26	0.04	0.48	19.72**
Predicted success	6 180	0	0.19	-0.02	0.40	1.04
Suitability	4 172	2	0.42	0.27	0.57	3.54
Employment potential	1 108	∞	0.44	0.05	0.82	0.00
Choice as partner	2 13	_ل ي	0.67	0.49	0.84	0.74
Performance evaluation	6 180	0	0.16	0.01	0.30	1.21
Attractiveness manipulation						4.54
Pretested and	28 1,490	9	0.33	0.26	0.40	102.38***
manipulation check						
Pretested and no	24 1,429	<u>0</u> ;	0.43	0.35	0.51	38.43*
manipulation check						
No clear information	10 288	∞	0.31	0.18	0.44	30.68***
OII DICIESI						

m = the number of effect size estimates in a category. n = pooled sample size. CI = confidence interval.

^a Pooled sample sizes cannot be computed because many effect sizes come from studies that used a within-subjects design. b These results are the same as those for the research setting category. *p < .05 **p < .01 ***p < .001

not differ between the low job-relevant information (d = .44) and the high job-relevant information (d = .34) conditions. Note, however, that even though the difference in effect sizes is not statistically significant, the pattern of means is consistent with Hypothesis 3.

Type of research design. Table 3 shows the results of the analyses concerned with the moderating effects of type of research design. Consistent with Hypothesis 4, the attractiveness effect varied as a function of research design: The mean effect size estimate was larger for within-subjects designs (d = .40) than for between-subjects designs (d = .26), Q = 5.82, p < .05. Note, moreover, that there is almost no overlap what-soever between the 95% confidence intervals for these two mean effect size estimates. The intervals for within- and between-subjects designs are .34 to .45 and .17 to .36, respectively.

Type of study participant. A test for the moderating effect of type of study participant (i.e., student vs. professional) on mean effect size estimates showed that this variable had no such effect. As can be seen in Table 3, mean weighted effect size estimates did not differ meaningfully between students (d=.40) and professionals (d=.31), Q=3.88, p>.05. These results provide a clear answer to Research Question 1.

Note, moreover, that, because all of the experiments that involved college students were conducted in laboratory settings, and all of the experiments that involved professionals were conducted in field settings, the just-noted results also can be interpreted in terms of research settings: More specifically, the magnitude of the attractiveness bias was similar for experiments in laboratory and field settings.

Sex of target. The mean effect size estimate for studies dealing with male targets (d = .40) did not differ from the mean effect size estimate for studies dealing with female targets (d = .32), Q = 2.80, p > .05. These results afford an unequivocal answer to Research Question 2: Effect sizes do not differ between male and female targets.

Publication period. The strength of the attractiveness bias differed as a function of the time interval in which studies were published, Q=23.31, p<.001. As shown in Table 3, mean weighted effect size estimates across the five 5-year intervals were as follows; 1975–1979 (d=0.54), 1980–1984 (d=0.48), 1985–1989 (d=0.38), 1990–1994 (d=0.37), and 1995–1999 (d=.19). The pattern of mean effect sizes suggests that they are decreasing over time. Indeed, the mean weighted effect size estimate for 1995–1999 (d=.19) was smaller than the mean weighted effect size estimates for 1975–1979 (d=0.54) and for 1980–1984 (d=.48), p<.01. Overall, therefore, we believe the results offer a clear answer to Research Question 3: Effect sizes are decreasing as a function of time.

Type of job-related outcome. The strength of the attractiveness effect varied as a function of type of job-related outcome, Q = 24.05,

p < .01. The mean weighted size estimate was largest when the criterion was choice of business partner (d = 0.67), and was smallest when the criterion was a performance evaluation (d = 0.16). The remaining jobrelated outcomes resulted in effect size estimates that varied between the values of 0.19 and 0.44. We urge that these results be interpreted with caution because of a relatively small number of effect sizes associated with some of the job-related outcomes (e.g., employment potential, choice as a business partner). Nevertheless, the results provide a clear answer to Research Question 5: The magnitude of the attractiveness effect varies across the outcomes considered by research.

Effectiveness of attractiveness manipulation. As seen in Table 3, there was no attractiveness effect for studies that did versus did not check for the effectiveness of their attractiveness manipulations, Q = 4.54, p > .05.

Discussion

Support for the Theoretical Perspectives

Two theoretical perspectives were used to explain relationships between attractiveness and various job-related outcomes. Implicit personality theory predicted that attractive individuals would be judged and treated more positively than less attractive individuals on job-related outcomes. The lack of fit model predicted that attractiveness would interact with sex of individuals and sex-type of job. Results of the present meta-analytic study provided support for the prediction of implicit personality theory but failed to support the prediction of the lack of fit model. Consistent with implicit personality theory, the results show clearly that attractive individuals fare better than their less attractive counterparts in terms of a variety of job-related outcomes. The mean weighted effect size estimate (d) for attractiveness was .37 for the 62 effect size estimates.

The results of our study failed to support the prediction derived from the lack of fit model (Heilman, 1983). The mean effect size estimates were all positive, regardless of the sex of job applicants or employees and the sex-type of the job. Thus, our results afford no support for the "beauty-is-beastly" perspective: *Physical attractiveness is always an asset for individuals*.

Effects of Job-Relevant Information

Interestingly, our meta-analysis failed to show that the attractiveness bias is stronger when decision makers have less job-relevant information about the target than when they have more such information. This finding is inconsistent with the above-described information usage models of Fiske and Neuberg (1990), and Brewer (1988). Both such models suggest that perceivers (e.g., decision makers) will be *less* influenced by job-irrelevant factors (i.e., physical attractiveness of job applicants or job incumbents) when they have other (i.e., individuating) information about the target.

It deserves adding that even when decision makers have job-relevant information about targets, they may still use physical attractiveness information in making decisions. Attesting to this is the fact that even many of the studies included in the present meta-analysis provided a large amount of job-relevant information about targets (e.g., relevant past work experience, relevant college major, interview transcripts, performance reviews), the same information had no effect on impressions formed about the targets.

As noted above, several researchers (e.g., Morrow, 1990; Stone et al., 1992) have argued that although physical attractiveness might not be the most important determinant of employment-related decisions, it might be a crucial deciding factor when decision makers are faced with the difficult task of either (a) selecting one applicant among several who possess similar qualifications for a job, or (b) differentially rewarding employees who have similar records of job performance. The results of the present meta-analysis provide considerable support for this argument; that is, the findings indicate that attractiveness can have a nontrivial, positive impact on individuals' job-related outcomes, even when job-relevant information about them is available to decision makers.

In spite of this study's failure to find a moderating effect of individuating information on the relationship between attractiveness and various job-related outcomes, we believe that this type of information can reduce the degree of reliance that decision makers place on attractiveness. Moreover, we suspect that our failure to find a moderating effect may have been attributable to two factors. First, our study may not have had enough statistical power to detect the effect. Second, the rather crude way in which the individuating information variable was operationalized in our study may have led to the failure to find such an effect.

Between- Versus Within-Subjects Designs

Our meta-analysis showed that the effect of attractiveness may be especially pronounced in research calling for evaluators to sequentially observe and evaluate several individuals who differ in terms of attractiveness (e.g., as is true of research using within-subjects designs). Under such conditions, differences in attractiveness among targets are likely to be more salient than when only one target is observed and

evaluated (e.g., as is true of research using between-subjects designs). The same results are consistent with those of studies by Eagly et al. (1991) and Olian et al. (1988). However, similar to a note of caution advanced by Olian et al. (1988), we recognize that this study's findings may not generalize to actual employment situations. The reason for this is that the studies considered by our meta-analysis involved research in which participants made judgments about hypothetical, as opposed to actual, job applicants or incumbents. Nevertheless, it deserves noting that the strategy followed in research using within-subjects designs more closely reflects what occurs in "real world" selection contexts than that followed in research using between-subjects designs (e.g., Olian et al., 1988). That is, organizational decision makers typically evaluate two or more job applicants or job incumbents within a relatively short time interval. Thus, we believe that the closer in time two or more applicants or incumbents are evaluated by raters (e.g., personnel interviewers), the greater will be the bias in ratings attributable to differences in attractiveness among them.

Type of Evaluator

Our findings also indicate that personnel professionals (e.g., recruiters, personnel consultants) are as susceptible as college students to bias their decisions about targets on the basis of target attractiveness. In view of this, personnel professionals should be made aware of the fact that the attractiveness of job applicants and job incumbents may bias employment-related decisions. In addition, decision-making procedures should be structured so as to avert or lessen the influence of this bias.

Attractiveness Effects Across Target Sex

The results of our meta-analysis show that attractiveness is just as important for male as for female targets with respect to various job-related outcomes. It merits adding that the same results are consistent with the findings of three previous meta-analyses (i.e., Eagly et al., 1991; Feingold, 1992; Langlois et al., 2000). All three failed to find sex-based differences in perceptions of attractive and less attractive targets across several evaluative dimensions. In contrast, Jackson et al. (1995) found stronger attractiveness effects for men than for women in perceptions of their intellectual competence, and Feingold (1992) found stronger attractiveness effects for women than for men in attributions concerning sexual warmth. Overall, these results indicate that sex differences in attractiveness effects might be domain specific.

Time Period of Attractiveness Research

As noted above, our meta-analysis showed differences in the magnitude of the attractiveness effect as a function of period during which studies were published: The strength of the same bias during the 1995–1999 period was smaller than the strength of the bias for the 1975–1979 and 1980–1984 periods (p < .01). These results suggest that the strength of attractiveness bias has decreased in recent years. However, at this point in time, the reasons for this decrease are not known.

Type of Outcome

Although the results of our meta-analysis indicate that the effect of attractiveness varies as a function of type of job-related outcomes, these same results should be interpreted with caution. The reason for this is that there were a relatively small number of effect sizes for some of the job-related outcomes (e.g., employment potential, choice as a business partner).

Magnitude of Effect Size Issues

Finally, the findings of our meta-analysis expand upon those of (a) Eagly et al. (1991) and Feingold (1992) who found small to moderate sized effects of attractiveness on a number of evaluative dimensions (e.g., social competence, intellectual competence, concern for others, sexual warmth), (b) Ritts et al. (1992) who found a small sized effect of student attractiveness on teachers' judgments of them on such dimensions as intelligence and future academic potential, and (c) Jackson et al. (1995) who found moderate sized effects of attractiveness on intellectual competence. Corroborating the results of Langlois et al. (2000), our meta-analysis showed that physical attractiveness can bias job-related outcomes in simulated employment settings, and that the consequences of this bias are far from trivial.

Implications for Theory and Practice

Overall, the present findings have both theoretical and practical implications. In terms of theory, they indicate that the attractiveness bias is due to positive expectations associated with attractiveness, rather than due to intensified perceptions of sex-typing. Although the present study was not intended to compare and contrast theoretical perspectives, the results of it are highly consistent with the tenets of implicit personality

theory. Moreover, the results are not supportive of predictions stemming from the lack of fit model.

At a practical level, the present findings reaffirm the importance of physical attractiveness biases in organizations. As Jackson et al. (1995) pointed out, a bias for attractive individuals should be a concern insofar as it results in liabilities for the less attractive individuals. Furthermore, personnel professionals should be made aware of such a bias and should implement strategies that avert or lessen the influence of this bias, especially when two or more job applicants or job incumbents are being evaluated within a relatively short time interval.

Limitations

Reliance on experimental studies. Several limitations of the present meta-analytic study deserve mention. First, because one of the criteria used for including studies in our meta-analysis was that physical attractiveness was a manipulated variable, only experimental studies were considered by it. We employed this criterion because experimental studies are critical to establishing causal relationships between attractiveness and various job-related outcomes (i.e., internal validity). Because of numerous research-related constraints, it would be difficult, if not impossible, to demonstrate causal connections between attractiveness and various outcomes in actual work settings.

Thus, one potential limitation of our meta-analysis is that, as a result of considering only experimental studies, we have no sound basis for inferring how attractiveness would affect outcomes in nonexperimental studies (i.e., external validity). However, we have no reason to believe that the effects found in our study would not be found in nonexperimental research in field settings. Nevertheless, the effects of physical attractiveness in organizations might be smaller than that suggested by our findings. There are two reasons for this. First, decision makers in actual organizational settings usually have richer and more realistic individuating information about job applicants and job incumbents than was present in the studies considered by our meta-analysis. Second, organizational decision makers are often more accountable for their judgments than are participants in experimental studies of attractiveness effects. That is, the costs associated with incorrect decisions (or other inferences) are typically greater for organizational decision makers than they are for participants in experimental studies. However, results from Pendry and Macrae (1994) suggest that individuals will rely on stereotype-based evaluations when making judgments about a target unless they have sufficient attentional resources to devote to individuating information. In other words, even they are motivated to do so, cognitively busy individuals will be less capable of correcting their stereotyped-based impressions of a target than individuals who are not as busy. It deserves adding that in actual organizations, decision makers are often faced with multiple tasks when they evaluate individuals. The resulting cognitive busyness might prevent them from using individuating information, even when they may be motivated to do so. Thus, their decisions may still be influenced by attractiveness stereotypes.

Attractiveness of targets. A second potential limitation of our findings has to do with the types of targets used in the primary studies included in our meta-analysis. As mentioned earlier, the typical attractiveness study compares high- and low-attractive targets. Because of this, the majority of the effect size estimates used in our meta-analysis were for comparisons of what the authors of primary studies labeled as high-attractive and low-attractive targets. Indeed, only 4 of the 27 studies in our sample included a medium level of attractiveness condition. As a result, we were unable to compute meaningful effect size estimates for comparisons of (a) medium-attractive targets with (b) either high- or low-attractive targets. However, there is no good reason to expect other than a linear relationship between attractiveness and various job-related outcomes. Thus, the absence of studies having targets of medium attractiveness does not appear to be a threat to the external validity of our findings.

Types of participants in primary studies. Yet another potential limitation to the external validity of our results is that we were unable to determine (and code) the sex of research participants in the primary studies that were included in our meta-analysis. The reason for this is that authors of most primary studies failed to report results separately for male and female participants. However, both Eagly et al. (1991) and Feingold (1992) reported that the strength of the attractiveness stereotype did not vary as a function of the sex of subjects (i.e., raters). Thus, at present, we do not know if male decision makers would evaluate attractive individuals more positively than would female decision makers or vice versa. As a result, future research should investigate potential rater gender differences on the use of attractiveness cues in making job-related decisions.

Number of studies. Some might argue that the number of studies (N=27) upon which our meta-analysis was based is rather small. However, it should be noted that many meta-analyses have been done using a relatively small number of studies. For example, Olian et al.'s (1988) meta-analysis dealing with gender discrimination in hiring decisions was based upon only 20 studies. Likewise, a meta-analysis by Tosi and Einbender (1985) was based upon only 21 studies. Thus, we do not feel that the number of studies considered by our meta-analysis was too small to produce meaningful results.

Validity of attractiveness manipulations. Another potential limitation of our study's results is that we had no satisfactory way of gauging the appropriateness (validity) of the manipulations of physical attractiveness that were used in the primary studies. Although most researchers used ratings of independent judges to select their targets, rules for selecting attractive and unattractive targets were not clearly specified in most studies. Indeed, there seems to be no agreed-upon criteria for defining physical attractiveness in attractiveness research.

Despite the fact that manipulation checks for attractiveness were present in most studies, relevant data were not generally reported in sufficient detail to determine the validity of various attractiveness manipulations. In addition, most of the studies used only one or two photographs to represent each level of attractiveness. Therefore, across-study variability in the strength of attractiveness manipulations was probably responsible for some of the between-study variation in effect size estimates.

Short-term involvement of study participants. A final potential limitation of our study's findings is that past research on attractiveness has not grappled with the possible study-related artifacts that might be produced when evaluators have only short-term involvement in a study and must base their views about targets on limited amounts of information. For example, it might be argued that attractiveness will have a larger impact on perceptions early in a relationship and its importance will decrease over time. Regrettably, all of the studies on physical attractiveness in the occupational domain used research designs involving judgments about simulated job applicants or incumbents at a single point in time. With such designs there is no way to assess how attractiveness effects might vary over time. Unfortunately, longitudinal studies would be difficult to conduct unless there was some way of ensuring that evaluators and targets had sustained contact with one another.

In spite of the just-noted limitations, we feel that our study's results are worthy of note by both theorists and practitioners. More specifically, theorists should pay more attention to situational moderators of attractiveness effects. In addition, practitioners should develop strategies for limiting the operation of attractiveness effects in organizational contexts.

Summary

The present meta-analysis showed that (a) attractive individuals fared better than their less attractive counterparts in a variety of job-related outcomes, (b) the attractiveness effect did not differ between studies that provided low versus high amounts of job-relevant information about targets, (c) the attractiveness bias was larger for studies using withinsubjects designs than for those using between-subjects designs, (d) professionals were as susceptible to the attractiveness bias as were college students, (e) attractiveness was as important for male as for female targets, and (f) the biasing effect of attractiveness seems to have decreased over time.

Finally, it deserves stressing that the present meta-analysis is not redundant with prior meta-analyses on physical attractiveness. For example, meta-analyses by Eagly et al. (1991) and Feingold (1992) were more concerned with attractiveness stereotypes (e.g., intellectual competence, concern for others, social competence) than with the effects of attractiveness on job-related outcomes. Langlois et al. (2000) went one step beyond what might be viewed as "stranger-attribution paradigms" (i.e., physical attractiveness stereotypes) to determine the extent to which attractiveness influenced daily lives and actual interactions. They found that attractive adults were judged more positively on occupational competence, social appeal, and interpersonal competence, and demonstrated that attractiveness has an important influence in the workplace. In contrast to these meta-analyses, the present study provided an in-depth assessment of the effects of physical attractiveness in the workplace. In addition, it provided evidence of the effects of several moderators of the effects of attractiveness on various outcomes.

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