

RACIAL DIFFERENCES IN JOB SATISFACTION: AN EXPLANATORY MODEL

A Thesis

by

JENNIFER MARIE RODRÍGUEZ

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

December 2009

Major Subject: Psychology

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ABSTRACT

Racial Differences in Job Satisfaction: An Explanatory Model. (December 2009)

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Using meta-analysis, the current paper reveals a modest difference between Black and White employees in terms of job satisfaction ($d = -0.13$; $k = 65$; $N = 29,560$). Several potential moderators of this relationship were investigated, but only two were supported: the proportion of Black employees in the organization and historical time period (i.e., year of publication and year of data collection). Specifically, Black employees tend to be relatively more satisfied when their proportional representation is larger and White employees have tended to be relatively more satisfied than Black employees over the years, with maximal White advantage occurring at the present day. This study further attempts to investigate race effects on job satisfaction through mediational analysis, with job complexity as the mediator. This analysis at the individual level does not support job complexity as a mediator. Further analyses involving race and job complexity at the job level of analysis show promise but are not fleshed out in detail. Results are discussed in light of both the job characteristics model and frame-of-reference (Cornell model) explanations for the origin of job satisfaction.

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1. INTRODUCTION

Organizational psychology has developed a resurgent interest in the topic of job satisfaction, owing largely to recent evidence connecting individual job satisfaction with valued work behavior (Fisher, 2003; Harrison, Newman, & Roth, 2006; Judge, Thoresen, Bono, & Patton, 2001), and to the emergent positive psychology movement (Seligman & Csikszentmihalyi, 2000). Systematic study of the origins of job satisfaction has a long history, dating back to Maslow's hierarchy of needs (1943), which laid the foundation for theories of fulfillment of individual needs and motivation. Whereas the dominant mid- to late-century models of job satisfaction tended to focus on characteristics of the job and task environment as precursors to satisfaction (Hackman & Oldham, 1976; Smith, Kendall, & Hulin, 1969; Turner & Lawrence, 1965), there also simultaneously existed a minority viewpoint—that job satisfaction owes to social comparisons with referent others (Festinger, 1954; Salancik & Pfeffer, 1978; Thibault & Kelley, 1959).

The current paper focuses on a particular social-contextual construct—employee racial identity—to empirically estimate the association between race and individual job satisfaction. We believe that a focus on racial differences in job satisfaction is particularly important, because it can both inform theory on racial differences/similarities in the job domain (Roth, Huffcut, & Bobko, 2003), and it can suggest the potential consequences of historical factors (e.g., maltreatment and segregation; Feagin, 2006) in shaping job characteristics and well-being at work.

Specifically, this paper attempts to make three contributions to theory on race and

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job satisfaction. First, we provide an empirical estimate of Black-White and White-non-White racial differences in job satisfaction, using a meta-analytic database of 65 independent effects from 29,560 employed individuals. Second, we derive an empirical estimate of Black-White average differences in job complexity (i.e., job characteristics; Dunham, 1976; Dunham, 1977). This empirical evidence is then used to contrast two alternative theories on the etiology of job satisfaction for their ability to explain observed race differences: (a) the job characteristics approach (Hackman & Oldham, 1980), and (b) the frame of reference approach (Smith, Kendall, & Hulin, 1969; Thibaut & Kelley, 1959). Specifically, the job characteristics model is consistent with large Black-White differences in job satisfaction, owing to well-known Black-White gaps in occupational attainment and job types (USDOL, 2006), while the frame-of-reference model is consistent with very small between-race differences in job satisfaction (smaller than would be expected, given race differences in job characteristics), and owes to the explanation that individuals use others of the same race as a frame of reference when evaluating their own job satisfaction. The job characteristics idea is tested directly (as a full mediation model of race effects on satisfaction), while the frame of reference idea is tested only indirectly (as a positive relationship between race and satisfaction [Black employees more satisfied than White employees], after job characteristics have been controlled. This meta-analytic mediation test required us to produce an original estimate of the association between Black-White race and job complexity. Third and finally, we assess several potential moderators of the race-satisfaction effect, including: (a) time, (b) level of analysis (within-organization vs. between-organization), (c) racial composition of work organization (i.e., % Black), (d) satisfaction facet, (e) gender, and (f) occupational

prestige. Before describing the method, we present some background theory on job satisfaction and race.

2. LITERATURE REVIEW

2.1 What is job satisfaction?

Job satisfaction is a psychological response to a person's job situation. There are several components of job satisfaction: cognitive, affective and behavioral (Hulin & Judge, 2003). The concentration of the research on job satisfaction has followed the trend of other attitude research (Eagly & Chaiken, 1993) and focused on the affective (feelings) and cognitive (thoughts and evaluations) aspects of satisfaction (Schleicher, Watt & Greguras, 2004; Weiss, 2002). Brief and Weiss (2002) draw a distinction between affective components of satisfaction and evaluative satisfaction judgments, saying job satisfaction can be seen as an affective response to a cognitive appraisal of the job situation. Brief and Roberson (1989) examined three of the most popularly used job satisfaction measures, the Faces scale, the Job Descriptive Index (JDI) and the Minnesota Satisfaction Questionnaire (MSQ), for their cognitive and affective content. They found the Faces scale to be the more balanced measure of affective and cognitive components of job satisfaction. They also found the JDI to measure both the cognitive components and negative affective components of job satisfaction, while the MSQ measured only the cognitive components. Results showed that though job satisfaction is often conceptualized in affective terms (Locke, 1976), it is generally measured in more cognitive terms. In the current study, I define job satisfaction as a general attitude (Eagly & Chaiken, 1993) toward one's work role—that is, job satisfaction is an overall favorable or unfavorable evaluation of one's job.

2.2 Components of job satisfaction

Though job satisfaction can be seen as a unitary attitudinal reaction toward one's job, there is also some support for a multidimensional view of this concept, reflecting attitudes toward different aspects of the job (Smith, Kendall, & Hulin, 1969). An early multifactor theory of job satisfaction came from Herzberg, Mausner, and Snyderman (1959), who proposed a two factor explanation referred to as *motivator-hygiene theory*. This theory describes two separate sets of factors that affect satisfaction and dissatisfaction separately. It posits that motivators or satisfiers, such as recognition and responsibility, lead to job satisfaction, whereas hygiene or maintenance factors, such as company policies, lead to job dissatisfaction. Herzberg's theory however has generally fallen out of favor with contemporary researchers, and the evidence for the distinction between factors that affect satisfaction and dissatisfaction separately is generally thought of as inconsistent (Brief, 1998).

Nevertheless, multifaceted models of job satisfaction have a longstanding history, related to the identification of multiple, distinct aspects of the job with which employees can be satisfied (Brief & Nord 1990a; Friedlander 1963; Smith et al., 1969; Vroom 1964). For example, Friedlander (1963) found that there were three elements of the work context that affected an employee: the social and technical environment, intrinsic self-actualizing work aspects, and recognition through advancement. Although Brief (1998) notes there is no theory that systematically identifies a particular set of job satisfaction facets, several measures have been created that test a variety of facets. Primary among the facet job satisfaction measures are the Job Descriptive Index (JDI; Smith, et al., 1969) and the Minnesota Satisfaction Questionnaire (MSQ; Weiss, Dawis, & England, 1967).

The JDI assesses an employee's satisfaction with five job facets: co-workers, pay, promotion opportunities, supervision, and the work itself. The MSQ measures satisfaction with twenty work aspects, referred to as work reinforcers, which include: ability utilization, achievement, activity, advancement, authority, company policies and practices, compensation, coworkers, creativity, independence, moral values, recognition, responsibility, security, social service, social status, supervision-human relation, supervision-technical, variety, and working conditions. In the case of the MSQ, the twenty work aspects of the long-form were factor analyzed and found to represent two more general factors: intrinsic and extrinsic job satisfaction (Weiss, Dawis, England, & Lofquist, 1967). Based on the factor analytic results found by Wiess et al., (1967) the intrinsic job satisfaction factor dealt with aspects of the job that would be considered internal (e.g., achievement, ability utilization, independence), whereas the extrinsic job satisfaction factor dealt with aspects of the job that would be considered external or controlled by the organization or supervision (e.g., advancement, company policies & procedures, compensation). Support for the two general factors was found using factor analysis which replicated across several samples of participants from 25 different occupational backgrounds.

Whereas it is clear that some of the facets addressed by each measure can overlap, it is also plausible for employees to be satisfied with one aspect of their job, the work itself for example, but dissatisfied with another aspect, maybe the pay. Smith, et al. (1969) addressed this by testing the discriminant and convergent validity of the facets measured in the JDI. In a series of four studies, five distinguishable facets of the JDI were validated. These studies varied in the target population--utilizing students and

employees from a farmer's cooperative, a bank, and the electronics industry. The studies also varied in their method of measurement, from interview data to direct ratings, and in their analysis, which included principal components and cluster analysis to determine the convergent and discriminant validity of the items and facets of the JDI. The authors found that five separate factors replicated: work, pay, promotion, supervision and co-workers. Smith, Smith and Rollo (1974) were able to confirm these results in later studies, and Kinicki, McKee-Ryan, Schriesheim, and Carson (2002) presented similar results in a large scale meta-analysis of the JDI, with the average uncorrected meta-analytic inter-facet correlation estimated at $\bar{r} = .29$. Further, Smith, Smith and Rollo (1974) were unable to find differences between races for the factor structure of the job descriptive index, suggesting that mean race difference in satisfaction are attributable to actual difference in the latent satisfaction constructs, rather than due to race differences in the scaling of the measure itself (see Vandenberg & Lance, 2000).

In the Manual for the MSQ (Weiss, et al., 1967) concurrent validity is reported for the use of the long form MSQ as a measure of general satisfaction. Based on a review of the literature that found that there were occupational group differences in satisfaction, the MSQ was used to test 25 occupational groups, ranging from accountants to field representatives to laborers, and found group means and variances to be significantly different ($p < .001$ on each item). According to Weiss et al., (1967), the support they found for significant differences between occupational groups using their measure of satisfaction showed concurrent validity for the long-form of the MSQ. The short-form of the MSQ is a subset of questions from the long form. The analysis of the satisfaction measure is broken down into intrinsic, extrinsic and general satisfaction. Weiss and

colleagues again used occupational group differences to test the validity of the short form MSQ ($p < .001$ for each set of items). Kinicki et al. (2002) also tested convergent validities of the MSQ facets with those of the JDI by presenting the correlations for the four facets in the MSQ that most closely represented the same facets as four of the five JDI facets: MSQ Compensation-JDI Pay ($r = .57$), MSQ Advancement-JDI Promotion ($r = .60$), MSQ Coworkers-JDI Coworkers ($r = .47$), MSQ Supervisor-Human Relations-JDI Supervision ($r = .56$).

Some evidence suggests that aggregating across job satisfaction facets to reach a general score is not equivalent to measuring the global concept directly. Smith et al. (1974) tested the factor structure of the JDI and were unable to find support for a general factor. Scarpello and Campbell (1983) also tested this concept using the MSQ, again finding that aggregating across facets of a scale is not the same as measuring a general concept directly. For this reason, a Job in General scale was created to measure unitary, global evaluations of job satisfaction (JIG; Ironson, Smith, Brannick & Gibson 1989; Smith et al, 1969). Smith et al. (1969) created an original, one-item JIG scale that measures the overall job satisfaction of the individual in a holistic way. This one-item measure was found to be reliable by Smith et al. and Scarpello and Campbell (1983). Since then, Ironson et al. (1989) have created an 18-item adjectival scale about satisfaction with the job as a whole, also referred to as the JIG. In addition to both of these JIG scales, an abridged JIG (AJIG) scale was created by Russell, Spitzmuller, Lin, Stanton, Smith and Ironson (2004). Russell et al. (2004) were able to show that the AJIG was of comparable validity to the 18-item version created by Ironson et al., using a technique developed by Stanton (2000) which maximizes the covariance between the

shortened version and the original version of the measure. The AJIG also continued to yield an acceptable alpha coefficient (.85) and held the same general relationship with the JDI as did the non-abridged JIG.

2.3 Relevant theories of job satisfaction: Job Characteristics Model and the Cornell Model

Just as there are various ways to define and measure job satisfaction, there are several theories that attempt to specify the antecedents of it. The two we will focus on here address the areas of job characteristics and frames of reference. In the Job Characteristics Model (JCM; Hackman & Oldham, 1976) there are five job characteristics proposed to affect an employee's psychological state, which in turn affects individual affective outcomes. These five characteristics are: (a) skill variety, (b) task identity, (c) task significance, (d) autonomy, and (e) task feedback. If these core job dimensions are not present, then the resulting psychological states (experienced meaningfulness of the work, experienced responsibility for outcomes of the work, knowledge of the actual results of the work activities) will suffer, and job satisfaction will be adversely affected. Hackman and Oldham (1976) reported correlations between their five job characteristics and general satisfaction that ranged from .22 (task identity) to .43 (autonomy). Although the original JCM held that job satisfaction was a multiplicative function of several job characteristics (the *motivating potential score*; Hackman & Oldham, 1976), more recent updates have supported additive effects of the five job characteristics (Fried & Ferris, 1987). Fried and Ferris (1987) found that when meta-analytically relating the MPS to work performance, the 90% credibility value [i.e., "the validity value at or above which 90 % of all estimates of true validities lie" (Pearlman,

Schmidt, & Hunter, 1980 p. 387)] was .08. However when relating an unweighted additive index to work performance the 90% credibility value was .27. From this Fried and Ferris (1987) concluded that “a simple additive index was found to be a better predictor of outcomes than the MPS” (p. 312-3). Another proposed modification to the JCM is the idea that the five job characteristics may reflect less than the five originally defined factors (Dunham, Aldag & Brief, 1977) and may represent as few as a single, underlying factor (Dunham, 1976; Dunham, 1977). Dunham et al. (1977) found that the number of factors was not consistent across sample and found samples in which the factor analyses confirmed anywhere from two to five factors for the JDS. They admit that “no determination could be made of any covariate which might account for the fluctuations in the factor structure” (p. 222). Dunham (1976) conducted a factor analysis and found that one factor was able to account for 83% of the explained variance of the 5 variables of the Job Diagnostic Survey (feedback, task significance, task variety, task identity, and autonomy). According to JCM, if this unitary *job complexity* factor is strong, then job satisfaction should be high. By extension, this would mean that to the degree jobs are similar in terms of their characteristics across employees, those employees may report similar job satisfaction ratings.

Second, according to what has come to be known as the Cornell model of job attitudes (Smith et al., 1969), a portion of the evaluations made about a work role can be explained by one’s *frame of reference*. Although the work situation may be identical for two employees, outside factors can affect the individual by way of her/his individual frame of reference, changing the ultimate evaluation given to the work role. This model takes into account the fact that employees come into a job with different backgrounds

and/or experiences and allows for environmental influences. For instance, although Black and White employees may be in the same work situation, the relative backgrounds and environmental differences experienced by Black employees may make their ratings of job satisfaction different from those of the White employees. Also under the assumptions of this model, even though there may be a disparity in the work situations or job characteristics across two employees, their evaluations of their work roles may nevertheless be the same, because the single set of job characteristics is interpreted through two different frames of reference. For example, if there is disparity in pay between two employees in the same horizontal position, but the employee with the lower pay lives in a community where there is a high unemployment rate, then that employee may report higher levels of job satisfaction despite lower pay. According to the Cornell model, this unexpected result would be due to the lower-paid employee's use of his/her mostly unemployed community as his/her *frame of reference*, or basis of comparison, for how satisfying a job is. Hulin (1966) found support for this idea. He found that in areas with more prosperous community characteristics less job satisfaction was reported; however in slums, areas characterized by less prosperity, job satisfaction was higher.

A similar concept is Thibaut and Kelley's (1959) comparison level. Whereas the general idea is similar--both theories explain job attitudes as a function of outside factors not directly related to the job itself--this concept focuses more specifically on the past work experiences rather than all exogenous factors experienced by the employee. Thibaut and Kelley focus on the comparison of the employee's other work role possibilities (CL_{alt}) as a basis for comparison and also on their previous experiences in the same kind of work roles. In the current study, we utilize the explanatory mechanism

of the Cornell Model because we believe that the community and other larger group exogenous factors affect the job attitudes of different races.

In what was perhaps the first application of the frame of reference idea to Non-White vs. White race differences in job satisfaction, O'Reilly and Roberts (1973) found mild support for racial differences in satisfaction and described these differences as being potentially affected by the differing racial frames of reference. In their study of hospital staff, O'Reilly and Roberts found a trend in the data showing that White employees' satisfaction with all job factors measured in the JDI (i.e., coworker and supervision facets as well as pay and promotion facets of the JDI) tended to be strongly correlated with global job satisfaction, represented by the work itself facet of the JDI ($r = .55$, $r = .52$, $r = .49$ and $r = .46$ respectively). Non-White employees' satisfaction with coworkers and supervision, tended to be significantly correlated ($r = .72$ and $r = .76$ respectively) with their global job satisfaction [work itself facet], but not strongly correlated with facets of pay ($r = .13$) and promotion ($r = .30$). The authors concluded that factor analyses tended to support a trend toward nonwhite concern for factors normally considered intrinsic and white concern for both extrinsic and intrinsic factors. This "concern" for different kinds of job factors may be due to different exogenous factors that each race experiences; depending on their experiences, concern for certain job factors may become more prevalent. The authors wrote in their discussion that though the results were tentative, "We assume that whites and nonwhites approach their jobs with different frames of reference which can be identified and which are related to their job satisfaction" (p. 299). Moch (1980) also found differences across races based on various aspects of the job. Moch separated aspects of the job into intrinsic (e.g., opportunity to do your best,

develop your skills) and extrinsic (e.g., fringe benefits, pay). He found that Mexican Americans were the least concerned with extrinsic characteristics, Whites were most concerned with social relationships and interactions, and all three races were equally concerned with intrinsic factors of the job. We will return to this idea of preferences toward job factors later, after presenting more theory about race and the meaning of Whiteness.

2.4 What does “White” mean?

In discussing the theoretical bases for our eventual hypotheses linking race to job satisfaction, it is essential to articulate the content validity of racial category variables. Indeed, some authors have even questioned whether racial demographic variables constitute psychological constructs at all (Helms, Jernigan & Mascher, 2005; Helms & Talleyrand, 1997), or whether research linking demographics to psychological outcomes is meaningful in the absence of explanatory mechanisms (see Lawrence, 1997, for an incisive review of this ‘black box of demography’ critique).

The construct of being White, or “Whiteness,” is basically a social construction (Omi & Winant, 1994). White is an identity and an image that comes with privileges, and its meaning often inheres in what being White is not (Edwards, 2008; McIntosh, 1990; Thandeka, 1999). Being White means not being of any other race and not possessing physical characteristics that could disqualify one from claiming Whiteness as one’s racial identity. Thandeka (1999) interprets being White as the normative community by which others are outsiders. This concept is established by the unsaid and non-conscious understanding of people who are part of the normative community, or White people. In a study conducted by McIntyre (1997), there is a quote given by one of

the participants that illustrates this idea: “[Race] is America’s standardized test. Everything in society is compared to the norm reference group of whites...So this is our norm reference group and [these are] the test takers, the Blacks, and the people of color...and they’re not measuring up to our standards because we set up the standards and our standards might not be theirs. But the way our test is set up is that we represent the norm” (p. 85). According to Edwards (2008) Whiteness has three dimensions: (1) White structural advantage, (2) White normativity, and (3) White transparency. White structural advantage covers the area of dominance in political and economical realms. White advantage is seen at the institutional level--the President is [was] White, news anchors tend to be White, most corporate executives are White, etc. This first dimension has been described by other researchers as well, though not with the same terminology. McIntosh (1989) and McIntyre (1997) both refer to this kind of societal blanketing by Whites as White privilege. Edward’s third dimension, White normativity, deals with everyday normalization of White ideologies and practices. Whites are seen as supporting beliefs and practices that keep their race dominant in the racial hierarchy (McIntyre, 1997). This also leads to other racial groups being seen as deviating from the White norm. The final dimension, White transparency, deals with the concept of Whites as lacking a racial consciousness and a culture of their own. According to Edwards, Whites do not tend to think about themselves as being White and are unable to describe what it means to be “White.” Whites can even go so far as to become offended at the idea of having to define what being White means. Overall, concepts of race seem to place being White as the norm from which all other races are deviations (Lewis, 2004; McIntosh, 1989; McIntyre, 1997; Thandeka, 1999).

2.5 Differences between Races

Racial differences are more than skin deep, as they support an entire them-us paradigm that affects society as a whole. This dichotomy dates back prior to the beginning of the United States. In 1969, Winthrop Jordan used an excerpt from an essay by John Woolman to make his point about the unequal treatment of Blacks over time, quoting Woolman as writing, “[t]he Blacks seem far from being our Kinsfolks...They have neither Honours, Riches, outward Magnificence nor Power; their Dress coarse, and often ragged; their Employ Drudgery, and much in the Dirt: they have little or nothing at command; but must wait upon and work for others to obtain the Necessities of Life” (p. 5). Though the situation has improved for people of color, there is a clear historical path that links to current views about race, unconscious and hidden though they may sometimes be (Picca & Feagin, 2007).

Suggestive support for this idea has been found using the Implicit Association Test (IAT; Greenwald, McGhee & Schwartz, 1998). Greenwald et al. found that White participants were able to more quickly pair names considered as White names with pleasant descriptors than they were to pair Black names with the same descriptors (an average of 179 ms more quickly). Although the White subjects in the study showed no relative preference for Whites over Blacks on explicit measures, they were still implicitly favoring Whites. McConahay, Hardee, and Batts (1981) were able to tap into a similar idea when they created the Modern Racism Scale (MRS). Their scale asked participants questions with underlying racial tones that were intended to characterize what the authors called modern racism (e.g., “The streets are not safe these days without a policeman around.”, p. 568). These kinds of items were used in contrast to “old-fashioned racism”

items (e.g., “Black people are generally not as smart as whites.”) in an attempt to show the different responses for each kind of scale. McConahay et al. found support for the difference in the perceived presence of racism in the two different scales, with the modern racism scale being perceived as less racist ($M = 5.68$, $SD = 3.42$) than the old-fashioned scale ($M = 7.68$, $SD = 1.71$). When given to White male subjects, the effect of the race of the experimenter (either Black or White) affected the scores on the two scales. When the experimenter was White the participants’ scores on the old-fashioned racism scale were higher ($M = 9.90$, $SD = 4.36$) than on the modern racism scale ($M = 7.80$, $SD = 4.92$). When the experimenter was Black, the subjects scored lower on the old-fashioned racism scale ($M = 5.10$, $SD = 3.73$) than on the modern racism scale ($M = 6.70$, $SD = 2.58$). These results show that while the White participants alter their racist evaluations of Blacks on the overtly racist scale in the presence of the Black experimenter, they still demonstrate racist attitudes in a more implicit way. Based on these results the authors concluded that “whites mainly recognize old-fashioned racism as reflecting racism. Any of their opinions, beliefs, or actions that work to the detriment of blacks are not seen as prejudice; and since most white Americans either do not hold old-fashioned racist beliefs or they feel guilty about the ones they do hold, whites tend to think racism is a thing of the past” (p. 578). There are however, critiques of the use of the IAT, in particular, in measuring prejudice. Blanton and Jaccard (2006) describe the use of time as a measure of prejudice as inaccurate because a nonarbitrary physical measure does not translate directly into a measure of attitudinal preferences. Twice as many seconds in a trial does not translate into twice as much attitudinal preference. In addition traditional standardized norming of the IAT is not used and there is not a consistent

empirical link between the standardized scores of the IAT and acts of discrimination (cf. Ziegert & Hanges, 2005).

2.6 Racial differences in job satisfaction

There have been many primary research studies on differences in job satisfaction by racial group. The main thrust of this research is usually a test of whether there are racial differences at all. Several studies have found support for racial differences (Greenhaus et al., 1990; Konar, 1981; O'Reilly & Roberts, 1973). Some have found that Blacks rate job satisfaction higher than Whites do (Brenner & Fernsten, 1984; Bruno, 1994; Somers & Birnbaum, 2001) while others have found that Whites rate job satisfaction higher than Blacks (Andrisani & Shapiro, 1978; Corbie-Smith, Frank, & Nickens, 2000; Cox & Nkomo, 1991; Cunningham & Sagas, 2004). Somers and Birnbaum (2001) conducted a study on racial differences in work attitudes (e.g., job satisfaction, job involvement, affective commitment, continuance commitment, Person/Organization value congruence, and intention to remain) and found that the resulting differences between Blacks and Whites was dependent on what covariates were used in the analysis. For example, looking at job satisfaction specifically, they found that when no covariates were included in the analysis there was not a significant difference between Blacks ($M = 3.66$) and Whites ($M = 3.89$; $p > .05$). However when lifestyle covariates (e.g., marital status, household income and number of children) were added to the analysis the difference between Blacks ($M = 3.67$) and Whites ($M = 4.01$) becomes significant ($p > .001$).

There is still a large number of studies that find racial differences in job satisfaction. One example is O'Reilly and Roberts (1973), who found similar results for a

study that separated races into White and non-White. They found Whites to have higher job satisfaction than non-Whites on the GM Faces scale, the JDI and the Brayfield-Rothe indices. In another study, Konar (1981) in a re-examination of the Moch's (1980) original study showed that "about half of the variance in job satisfaction could be predicted from the race of the respondent" (p. 524). Moch (1980) himself found that Whites were more satisfied than Blacks, and Mexican Americans were more satisfied than Whites.

Greenhaus, Parasuraman and Wormley (1990) found significant differences between Blacks and Whites on career satisfaction--with Blacks having lower levels of satisfaction than Whites--even after matching Blacks and Whites on a variety of characteristics, including age, tenure, job function, and level in the organization. Testing a slightly different perspective to the job satisfaction construct, Slocum and Strawser (1972) used Porter's (1961) questionnaire which measured what was called needs satisfaction, to focus on employee needs with respect to their jobs, and used five needs categories: (1) security, (2) social, (3) esteem, (4) autonomy and (5) self-actualization. Slocum and Strawser (1972) were able to find support for racial differences in needs satisfaction of job characteristics between Blacks and other Certified Public Accountants (CPAs). They found that Black CPAs felt there was greater deficiency in the social needs category than did other CPAs. Slocum and Strawser (1972) comment that this was to be expected since the ratio of Black CPAs to non-Black CPAs was 1:6,500 (p. 31). This has implications for our study, as we discuss the concept of tokenism later.

Because of the inconsistent support for racial differences in job satisfaction in the empirical record, we believe that a meta-analysis might be a useful method for documenting the overall mean difference estimate, as well as for identifying the

moderators of this effect. Given the concept of White privilege discussed above, and making the assumption that privilege in job characteristics leads to heightened job satisfaction (as predicted by the JCM; Hackman & Oldham, 1976), we hypothesize the following:

Hypothesis 1a: *Blacks will report lower average job satisfaction than Whites.*

Hypothesis 1b: *Non-Whites will report lower average job satisfaction than Whites.*

2.7 Competitive theory test: Job Characteristics Model versus Frame of Reference

One possible explanation for differences between races in job satisfaction lies in a theory we discussed previously, Hackman and Oldham's (1976) Job Characteristics Model (JCM). Beaty (1990) was able to find that among the demographic variables included in his analysis (tenure, race, education and sex) race was the only variable that explained a large portion of the variance in both job satisfaction and job characteristics. This suggests that the race of an individual can have an impact on the job characteristics that individual experiences. Race has played a significant role in labor relations and economics throughout history. Historically (from the early-17th century through the mid-19th century), the U.S. economy was built on southern agrarian goods, which were produced almost exclusively with the exploited labor of Black slaves (DuBois, 1935; Jordan, 1968). It is fitting in a historical sense to look at the role of Black laborers. Perhaps the most illustrative description of the Black laborers' situation during slavery can be seen in a poem by Percy Bysshe Shelley: "...The seed ye sow, another reaps;/The wealth ye find, another keeps;/The robes ye weave, another wears;/The arms ye forge, another bears." Though Black slaves worked hard they were not equitably rewarded and

were not well-regarded, to put it mildly. Though there have been significant improvements in the economic situation of Blacks (e.g., higher status jobs), the bulk of the attempt for racial equality began (and ended) between 1939 and the early 1970s, in which time Black men had gone from earning 42% to 67% of what White men earned, and Black women were earning almost equally what White women were earning (Carnoy, 1994). Though Blacks have come a long way, Carnoy (1994) points out that “[g]ains in economic and social inclusion for blacks have all but come to an end, and have done so a long way from the equal treatments in schools and workplaces that seemed so achievable a generation ago” (p. 13). The census data is another way to find support for differences in occupations across race. The census from 1950 shows that out of 4,934,457 employees at the managerial level, 99.3% were White (male and female data combined) while 1.2% were Black (U.S. Census Bureau, 1950). In service occupations, out of 4,287,703 employees, 79.7% were White while 19% were Black. The census data from 2006 show that out of 50,420,000 adults employed at the “management, professional, and related occupations” level, only 8.4% of them are Black or African American while 83.7% of them are White (USDOL, 2006, Table 12; the corresponding representation in the general U.S. population is 12.8% Black and 80.0% White). In “service occupations”, out of 23,811 employees, Blacks make up 15.9% while Whites make up 76.9%. Though Whites make up a larger part of both categories given the fact that there are more Whites in the United States than there are Blacks, it is important to note that Blacks are strongly overrepresented in the service occupations, and underrepresented in professional occupations, in both years described. Given the differences in jobs occupied by different races, it is apparent that the

characteristics/complexity of the jobs in which Blacks are employed differ from those jobs in which Whites are employed. Thus the following hypothesis is proposed:

Hypothesis 2: The effect of Black-White race on job satisfaction will be mediated by job complexity.

When hypothesizing a mediated effect, it is important to distinguish full mediation from partial mediations (James, Mulaik, & Brett, 2006). The above hypothesis is a full mediation hypothesis, because the effect of race on job satisfaction will be explained by job complexity.

At this point we will return to the theory of frames of reference described earlier (i.e., the Cornell model, Smith et al., 1969). This concept deals with the referent used by the individual when evaluating her/his work situation. In an attempt to show support for the frames of reference impact on individual satisfaction, Kendall (1963) tested the relationship between various situational, behavioral, and personal characteristics and satisfaction. The findings showed that ratings of satisfaction with the job in general were affected by community factors such that when the alternative in a given community is unemployment, satisfaction with the job in general is higher. It was also found that satisfaction with pay is affected by the relative prosperity of the community, in other words individuals in a community with low prosperity tend to be more satisfied with the pay they receive at their job. There was also evidence that general satisfaction was affected by the ability to meet financial needs in the future. Similar results were found in a study by Hulin (1966) in which community characteristics and job satisfaction were measured for a group of female clerical workers. The study showed that the satisfaction scores, pay satisfaction even more distinctly, were negatively related to all four variables

used to index community prosperity: (1) median income ($r = -.44$), (2) percentage earning over \$10,000 ($r = -.38$), (3) percentage of sound housing ($r = -.45$) and (4) per capita retail sales ($r = -.24$). Hulin (1966) concluded that “it appears that the less attractive the community, in terms of...prosperity,...the more satisfied are the workers with their jobs” (p. 189). These results show potential support for the concept that individuals use various exogenous characteristics as references when evaluating a job situation. More specifically, Kendall (1963) writes “overall job satisfaction is also related to unattractive features of communities, suggesting that in such situations the overall attitude to a present job is favorable when the available alternative is seen as unemployment” (p. 101). This leads to the following hypothesis:

Hypothesis 3: Blacks will report higher average satisfaction than Whites, once job characteristics/job complexity is controlled.

At this point, I note that Hypothesis 2 (full mediation by job characteristics) and Hypothesis 3 (positive residual race-satisfaction relationship after job characteristics are controlled) cannot be simultaneously supported. Indeed, the counterposition of these two hypotheses is intentional, and is designed as a competitive theory test (Platt, 1964). That is, the concept of White privilege and the JCM combine to predict that race difference in job satisfaction will be present, and will be explainable by racial differences in job characteristics. The frame of reference theory, in contrast, would hold that racial differences in job satisfaction are *smaller* than would be expected, given racial differences in job characteristics. To restate, the JCM holds that White individuals can secure more complex and desirable jobs, and the beneficial characteristics of these preferred jobs lead to notably greater job satisfaction in Whites. By contrast, the frame of

reference notion holds that Blacks and Whites will display little difference in job satisfaction despite large differences in job characteristics, because each racial group uses a within-race relative comparison of job characteristics when evaluating satisfaction with one's job.

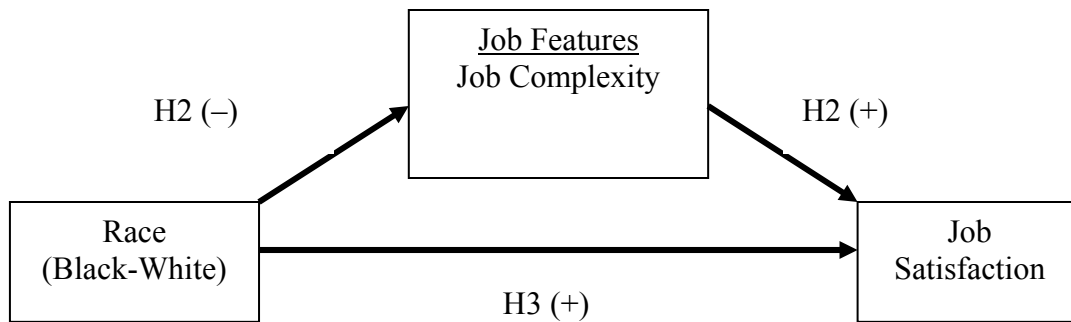


Figure 1. Explanatory model of racial differences in job satisfaction

Note. Positive (+) race effect indicates Black mean is higher than White mean.

2.8 Racial differences according to time frame

In the United States, the relationships between Whites and Blacks have been conflictual and exploitative to varying degrees since the early 17th century (Feagin, 2006). Given the explicitness and legality of the discrimination and racism shown toward Blacks up until the 1960's, it seems that Blacks might have faced especially heinous social conditions at work during that time. Social comparisons with White counterparts in similar jobs would have seemed particularly unfair during that time of rapid social change (1950's and 1960's), when the contrast between the political ideology of equality and the everyday reality of inequality was especially salient. Further, Blacks were unable

to gain access to prestigious or high-paying jobs during this time but were also made aware that they were unique in this lack of access. Also, taking the JCM (Hackman & Oldham, 1976) into consideration, and noting that job characteristics during this era tended to be disparate between Blacks and Whites, Blacks of this era should have been less satisfied with their jobs. Though there is still plentiful contemporary evidence of complicated race relations between Whites and Blacks (Bonilla-Silva, 2006) we assert that during a time of overt discrimination and segregation, such as the 50's and 60's, the JCM would predict a larger attitudinal difference between Whites and Blacks.

Specifically, the JCM supports the following hypothesis:

Hypothesis 4: There will be a positive correlation between racial differences in job satisfaction and year, such that in more recent years there is a smaller Black-White difference (i.e., Black employees' satisfaction will catch up to White employees').

However, the theory of frame of reference (Smith, et al., 1969) points out that individuals compare their situation to that of other situations or other individuals (referents) with whom they are familiar, in order to evaluate satisfaction with their current job role. This theory would imply that during the pre-Civil Rights Era, in which Blacks had less contact with Whites, they might have more exclusively chosen as referents other Blacks, or other jobs open to Blacks, when evaluating their satisfaction with their jobs. Taking this theory into consideration, we would assert that during a time of explicit discrimination and segregation, such as the 50's and 60's, the frame-of-reference theory would predict a *smaller* difference in job satisfaction between Whites and Blacks, because Blacks would be more likely to compare themselves to other Blacks (rather than to Whites) during the

era of legal segregation. Based on the frame of reference theory, we propose the following hypothesis:

Hypothesis 5: There will be a nil or negative correlation between racial differences in job satisfaction and year, such that in more recent years there will be larger differences, or the same size differences as earlier years .

Hypotheses 4 and 5 are deliberately counterposed, for the sake of creating a competitive theory test (Platt, 1964).

2.9 Moderators of the race-job satisfaction relationship

2.9.1 Racial differences in facets of job satisfaction

As we discussed earlier, job satisfaction has been separated into different facets, the most common being the five JDI facets of satisfaction with pay, promotion, supervisor, co-worker and the work itself. Smith et al. (1969) describe the need for multiple kinds of job satisfaction, saying that not only might they be related to the situation differently, but also the priorities of the individual may affect their satisfactions with other aspects of the job. Kinicki et al., (2002) performed a meta-analysis across 152 studies, and were able to find discriminant validation for the JDI's separate facets.

In studies by Weaver (1975) and Bloom and Barry (1967) evidence was found for facet-level variation in the differences between races. Studies found specifically that economic factors were more important to Blacks than to Whites. For example, Weaver (1975) found that higher income was important to 39.33% of Black participants but important to only 16.01% of White participants. He interpreted this to mean that Blacks were more than twice as likely to find higher income important ($p < .001$). He also found that Whites' satisfaction with the importance of the work contributed more to overall job

satisfaction than it did for Blacks. O'Reilly and Roberts (1973) found that there were differences in preference for intrinsic versus extrinsic job factors dependent on race. From a slightly different perspective, Slocum and Strawser (1972) examined needs satisfaction and found that Blacks tended to find 'lower order' needs, like the opportunity to help people, to be more important to their rating of satisfaction than did Whites. Why would there be racial differences in the perceived importance of job facets? By looking at differences in the actual job characteristics faced by different races, we propose reasons why members of different racial groups would be likely to differ in the aspects that they find important.

One explanation for why pay and economic benefit may contribute more to Blacks' job satisfaction has to do with a history of job insecurity, and the types of jobs in which Blacks have found employment, such as farm work (Weaver, 1975). Knowing that job security is poor for certain kinds of jobs may lead to a focus on pay and economic benefit. Another possible explanation is that White men tend to be in control of monetary resources at work (Smith, 2001). In a study by Smith (2001) on an all-male sample, it was found that there is a hierarchy of control of monetary resources at work, with White men at the top and Black men below them. If Whites tend to be in control of monetary resources, Blacks may be more preoccupied with accessing those resources. For this reason we propose the following hypothesis:

Hypothesis 6: Black-White differences will be larger for the pay and promotion facets of job satisfaction than for supervisor, coworkers, and work itself facets of satisfaction.

2.9.2 Inter/intra organizational differences

Tracking the level of analysis in meta-analysis is important, because primary studies often differ in their levels of aggregation (Ostroff & Harrison, 1999). For example, some primary studies focus on individual-level differences within a single organization, whereas other studies use national probability samples, for which there are almost as many different organizations as there are individuals. In the latter case, between-individuals effects are confounded with between-organizations effects (Ostroff, 1993), whereas in the former case they are not. Because our purpose is to describe Black-White differences in individual job attitudes, it is best to aggregate data across studies that are at the within-organization, individual level of analysis (Ostroff & Harrison, 1999). When trying to summarize a variety of studies it is important to split the data into that which comes from single organizations (purely individual-level effects) from that which comes from across several organizations (i.e., confounded individual-level with organization-level effects), and to test the moderating effect of the level of analysis.

The theory of frame of reference (i.e., the Cornell model which we discussed earlier) states generally that individuals use referents with whom they are familiar as a basis for comparison when evaluating their level of satisfaction in a given position. We assume that individuals who work in the same organization are more likely to choose other people in the same organization as their referents. That is, for a within-organization Black-White difference in job satisfaction, we would surmise that the Blacks and Whites being compared are more likely to be viewing each other as frames of reference. That is, Blacks and Whites within the same organization would be more likely to make cross-race comparisons to others within the same sample (heightening racial

differences in satisfaction). For cross-organization samples, however, the Blacks and Whites in the sample are probably not in contact with each other, and thus not directly using each other as referents (i.e., less cross-race comparison to others in the sample). As such, we expect that the tendency to use one's own racial group as a frame of reference (an idea that supports the prediction of small between-races differences in satisfaction) will be greater in multi-organization samples than in within-organization samples. We therefore propose the following hypothesis (based on frame of reference model):

Hypothesis 7: There will be larger differences between Blacks and Whites for studies conducted at all one organization/job versus those sampled across various locations/facilities/organizations/ universities.

Larger differences are expected in data from all one locale, because the members of different races are in contact with each other and are able to make job satisfaction evaluations relative to the same set of co-workers and the same environment.

2.9.3 Proportion of employees who are Black

Within organizations, it is not only important to take into account the absolute number of members of each race but also the proportion of individuals from a particular group. In a study of gender minorities, Kanter (1977) coined the term "tokenism" which referred to the idea that the proportion of representation, specifically a minority proportion, of one's own group has adverse effects on their psychological and work situation. Sacket, DuBois and Wiggins Noe (1991) found support for the idea of tokenism in terms of gender in a study on sex differences on job performance. They found that when women made up less than 50% of the population, their job performance scores were lower than men's (p. 265).

Kanter not only discussed the token effect in terms of gender but included race as well. She referred specifically to the relationship between minority status and psychological distress as a result of pressure and work stressors. Jackson, Thoits, and Taylor (1995) found that as the percentage of Blacks increased, the Black elites in their sample reported fewer problems with the “salience of their black identity (specifically, loss of black identity, multiple demands of being black, having to demonstrate more competence than peers, and sense of isolation)” (p. 553). This is consistent with the idea that becoming less of a token should lead to a lowering of the stress and pressure associated with being a token. Under the assumption that token status increases stress and pressures on the individual, we would pose the following hypothesis:

Hypothesis 8: Black employees will be more satisfied when they make up a larger proportion of the organization.

2.9.4 Occupational prestige

Occupational prestige refers to the prestige of status ascribed to a particular occupation or job. In 1960, the concept was being established that occupations were rank ordered loosely based on status and that this ordering was commonly understood with the public. Treiman (1977) conducted a cross-national study that showed support for the stability of occupational prestige. Although research has shown that the distribution of occupational prestige has changed over time (Goyder, 2005) the concept still exists. Arriving at an occupational prestige score varies but is usually a combination of characteristics about the job (e.g., salary, difficulty) averaged together (Deng, Armstrong, & Rounds, 2007).

Jobs that tend to be higher in occupational prestige are those that are considered professional as opposed to those considered service- or labor-oriented. In a study by Turner (1954) Blacks (referred to as Negroes in that era) tended to hold labor and service occupations more than Whites did and held professional positions less than Whites did, across the same levels of education. Turner proposed an explanation that “under ‘ideal’ conditions of minority and majority competing freely in the labor market, with racial preference operating informally throughout the labor market, minority ‘concentration’ in an occupation is an inverse function of the degree to which majority persons desire membership in the occupation” (p. 447). This proposed relationship may be affected by the level of prestige. In a study by Westie (1952), findings showed that when judging the social distance between Whites and Blacks, there is less distance between low status Whites and Blacks in general, but that for middle to upper status Whites, a larger distinction is made between low and higher status Blacks.

Research has supported a link between occupational prestige and job satisfaction. Weaver (1977; 1978) found that the relationship between occupation and job satisfaction is affected by the level of occupational prestige attributed to the occupation, specifically occupational prestige has been found to be positively related to job satisfaction (Kahn, 1972; Robinson, 1969; Weaver, 1977). With respect to race, Weaver (1978) found that there was a positive correlation between occupational prestige and job satisfaction among whites but a non-significant relationship for blacks. This implies that Black employees may be using other Blacks at the same status level as their frames of reference, whereas Whites are more likely to make cross-status comparisons when judging their job

satisfaction. The notion that Black employees are more likely to use within-status referents gives rise to the following hypotheses.

Hypothesis 9: For occupations with higher prestige, White employees will be more satisfied than Black employees.

Hypothesis 10: For occupations with lower prestige, Black employees will be more satisfied than White employees.

2.9.5 Gender differences

Intersectionality theory suggests that race and gender characteristics combine to create unique social positions for individuals (Crenshaw, 1995; Hurtado & Stewart, 1997). Although Black men and women share a racial category, and White and Black women share a gender category, Black women are the only subset of individuals who are considered a minority on both accounts. Research has supported the concept that Black women get paid less, get promoted less, and hold supervisory positions less often (Weber & Higginbotham, 1997). Some research has shown that Black women are aware that they are disadvantaged more than White women because of the addition of their racial minority status (Beale, 1979; Mays, Coleman, & Jackson, 1996; Settles, 2006; Thomas & Alderfer, 1989). Smith (1997) also discusses the idea that White women who tend to socialize and be involved with White men tend to reap secondary benefits (e.g., feelings of status) from those interactions, a phenomenon referred to as *status by association*. Research has shown that relationships across race boundaries are weaker than relationship between people of the same race (Thomas, 1990).

Hypothesis 11: White females will be more satisfied with their jobs than will Black females.

3. METHOD

3.1 Identification of studies

We collected primary studies on racial differences in job satisfaction. We started by searching the electronic database PsycINFO using the keywords “job satisfaction” with “White,” “Black,” “ethnic differences,” “ethnicity,” “race,” “ethnic,” and “racial.” Analyses included journal articles as well as book chapters and dissertations.

3.2 Inclusion of studies

After identifying potential useful articles based on their abstracts, articles were coded for elements such as racial breakdown, job satisfaction measure used, method of data collection, etc (see codesheet in Appendix). We included studies in the analysis that provided information on the relationship between race and job satisfaction, along with the corresponding sample size (N). Sufficient statistics for calculating Black-White differences include either the race-satisfaction point-biserial correlation, or the racial subgroup sizes, means and standard deviations. We also recorded the local reliability estimates of the satisfaction scales used. For studies that did not report scale reliability, we imputed the mean reliability for each specific scale from the Cronbach’s alpha estimates reported in Judge, Thoresen, Bono and Patton (2001)—correcting for the number of scale items when necessary (using the Spearman-Brown prophecy formula). The samples included were employed adults. We included both studies comparing Whites to Blacks (e.g., Davis, 1985; Weaver, 1975) and Whites to non-Whites (e.g., Cunningham & Sagas, 2004). If the statistics reported did not contain enough information for the calculation of the d -value (e.g., Mueller, et al., 1999) they were excluded. One such example is where articles included percent frequencies of satisfaction but did not report

means nor standard deviations (e.g., Corbie-Smith, Frank & Nickens, 2000; Stroman & Seltzer, 1991). Another such example is those articles that claim a significant difference in job satisfaction by race but do not give effect sizes for support (Gold, Webb & Smith, 1982; Schmiesing, 2002; Sweeney, Hohenshil & Fortune, 2002; Van Sells, Brief & Aldag, 1979)—these types of articles could not be included. Articles that focused on ethnic differences between two different nationalities were not used; for example a study that compared Arabs to Jews was not used in the meta-analysis (Abu-Bader, 2005). When we came across several articles that were based on the same sample (e.g., General Social Survey, or the National Longitudinal Survey) we used the article with the largest usable sample size that presented the statistics we needed for the analysis (GSS: Tuch & Martin, 1991; Van Sells et al., 1979; Vecchio, 1980; Weaver, 1977; Weaver 1977; Weaver, 1978; Weaver, 1980).

3.3 Calculating d scores

We calculated d scores from means and standard deviations on studies whenever possible (Hunter & Schmidt, 2004). If that information was not reported, we were able to calculate d scores from other reported statistics such as the t -values (similar to Roth et al., 2003). Conversion formulae from Hunter and Schmidt (2004) were used in an attempt to take the various types of data presented and convert them into useable and comparable effect sizes for the meta-analysis. Corrections were made for the reliability of the job satisfaction measure used in each study. Where available the reliability reported in the study was used. For the rest of the studies, where the reliability was not reported reliability was imputed from the mean reliability of the other studies. Correction for

reliability of the measure of race was not done, because we assume that self-reporting of race is perfectly reliable.

3.4 Mediation analysis

When testing the mediated relationships between race and job satisfaction via job characteristics, we followed Barron and Kenny's (1986) procedures (see also Shadish, 1996). We performed regression analyses testing the relationship between race and the mediator (job complexity), and also regressing job satisfaction onto both the mediator and race, to determine whether race has an effect on job satisfaction after controlling for job complexity. We also tested for complete mediation using procedures outlined by James, et al. (2006). In order to find support for complete mediation we first need to estimate the path from job satisfaction to job complexity, indicated by the formula $m = b_{mx}x + e$, where b_{mx} should be significant (James et al., 2006). If we are to find support for complete mediation we must also estimate the path from job complexity to job satisfaction and from race to job satisfaction controlling for job complexity, these paths are indicated by the equation $y = b_{yx.m}x + b_{ym.x}m + e$. We should find $b_{ym.x}$ to be significant if the path from job complexity to job satisfaction with race controlled for is supported. The path indicated by $b_{yx.m}$ should not be significant such that the path from race to job satisfaction is no longer significant when controlling for job complexity. The data needed to run the regression analyses included the three correlations among: (a) job satisfaction, (b) race, and (c) non self-reported job complexity. The correlation for each path of the mediation model was arrived at differently. The correlation from race to job satisfaction was based on the original meta-analysis conducted for this study, in this

case we converted our overall meta-analytic d to a correlation (r) with the formula

$$r_{pb} = d / \sqrt{(1/p(1-p)) + d^2} \text{ (Lipsey \& Wilson, 2001).}$$

For the path from job complexity to job satisfaction we used a meta-analytic correlation based on non-self-reported job complexity from Zimmerman (2008). By avoiding self-report for job complexity, we hoped to minimize percept-percept inflation of the job complexity correlations. We did not consider percept-percept bias to be a major threat in the case of the race-satisfaction correlation (Crampton & Wagner, 1994). We chose to use job complexity here to represent job characteristics for two reasons, (a) we were unable to find primary studies that contained information about race and job characteristics measured in a traditional sense (Hackman & Oldham, 1980), and (b) some evidence for the construct validity of coded job complexity scores based on job titles was provided by Judge, Bono, and Locke (2000), who reported a statistically significant correlation between job complexity and perceived job characteristics as measured per the JCM ($r = .23$). We do recognize that using job complexity in place of directly measuring job characteristics is less than ideal.

The correlation for the path from race to job complexity was calculated using census data that reported the racial makeup for occupations in the U.S. We correlated the proportion of Black employees in each occupation with the corresponding job complexity scores assigned to each occupation (see description section “job complexity coding”). Alternatively we could have calculated this correlation using the occupations from the primary studies from the overall meta-analysis.

3.5 Job complexity coding

In coding job complexity, Black-White race differences were estimated using census data (U.S. Census Bureau, 2006) on the occupations of Whites and Blacks across various years, in conjunction with Roos and Treiman's (1980) scheme for coding job titles into job complexity levels (e.g., see Judge et al., 2000). This enabled estimation of the relationship between race and job complexity. Job complexity was estimated for each occupation reported in the 2006 Census data. Job complexity scores were assigned to each occupation in the Census data based on its proximity to occupation titles in the Roos and Treiman (1980) article. The titles from the occupation list from the Census data were compared to each occupation title from Roos and Treiman, and where titles matched up (e.g., radio operators) the job complexity score that was assigned to that title in the Roos and Treiman article was assigned to the same title in the Census data. In instances where there were not direct matches between the two occupation lists, raters were asked to choose the closest match possible (e.g. clergymen in the census data and clergy in Roos & Treiman). Specifically, key parts of the occupation title were matched where possible. In some instances multiple occupations from the Roos and Treiman list (e.g., petroleum engineer and mining engineer) matched a particular occupation from the Census list (e.g., petroleum, mining and geological engineers, including mining safety engineers) In these cases the job complexity score from each title from Roos and Treiman was entered and then averaged to arrive at a single complexity score for the Census title. In all, there were 471 job titles and 137,668,735 individuals represented in the census dataset. Partly overlapping sets of the Census data were coded by more than one coder to assess agreement; in total there was one primary coder and two undergraduate assistant coders.

There was 75% agreement between the primary coder and coder #1, and 92% agreement between the primary coder and coder #2.

When estimating the relation between race and job complexity, we did not directly calculate Cohen's d because the standard deviation of job complexity across individuals was not available from the census data. Instead, we calculated the correlation between race and job complexity, across jobs. We note here that the level of analysis of job complexity is inherently the job-level, while the level of analysis of race has typically been treated as individual-level (cf. Newman, Hanges, & Outtz, 2007). The job-level correlation between job complexity and race (i.e., mean proportion Black in each job, considering Black and White employees only), weighted by sample size, was $r_{between_jobs} = -.55$. This means that higher complexity jobs have a higher proportion of White employees.

This job-level correlation ($r_{between_jobs} = -.55$) can then be converted into an individual-level correlation using the formula (Ostroff, 1993; Robinson, 1950)

$$r_{xy} = \sqrt{\eta_x^2 \eta_y^2} r_{between_jobs} + \sqrt{(1 - \eta_x^2)(1 - \eta_y^2)} r_{within}$$

where η_y^2 , in ANOVA terms, is the

variance in job complexity accounted for by jobs. Because $\eta_y^2 = 1.0$, the preceding equation

simplifies to $r_{xy} = \sqrt{\eta_x^2} r_{between_jobs}$. The term η_x^2 is the variance in race accounted for by

jobs, which is $\eta_x^2 = (j-1)\sigma_{pBlack(between_jobs)}^2 / ((j-1)\sigma_{pBlack(between_jobs)}^2 + (N-j)\sigma_{race(within)}^2)$

where $\sigma_{pBlack(between_jobs)}^2$ is the sample-weighted variance in mean proportion Black across

jobs; and, because race is dichotomous in this example [thus variance = $p(1-p)$],

$$\sigma_{race(within)}^2 = \frac{\sum_{i=1}^j n_i p_i (1 - p_i)}{\sum_{i=1}^j n_i}$$

where p_i is the proportion Black in each job, n_i is the

sample size for each job, and j is the total number of jobs. Solving this equation yields $\eta_x^2 = .00$. Therefore $r_{xy} = \sqrt{.00}(-.55) = .00$, meaning that race and job complexity have an individual-level sample-weighted correlation of .00. This value indicates that at the individual level there is no relationship between race and job complexity. We will briefly discuss this finding in later sections. It is this correlation at the individual level that was used in the mediation analysis discussed previously.

3.6 Assessing impact of historical time frame and proportion of Black employees

In order to address both the effect of time frame and proportion of Black employees on the racial difference in job satisfaction, sample weighted correlations were calculated. A sample-weighted correlation should be distinguished from the traditional sample-weighted mean correlation reported in most meta-analyses. The difference is that a sample weighted correlation is a Pearson correlation between two sample-level variables, for which each cross-product has been multiplied by the corresponding sample size.

For the correlation between d values and time frame, we used both the year of data collection (where possible) and year of publication to represent time frame. In order to calculate the correlation for year of data collection, we used only studies that reported the year the data was collected ($k = 35$) and the corresponding d values. For the correlation involving the year of publication we were able to use the full set of primary studies and their corresponding d values. Each year was used individually as opposed to creating year ranges when calculating the correlation.

The correlation between d values and proportion of Black employees was based on the d value for each primary and study and the corresponding proportion of Black

employees already calculated for use in the meta-analysis. In both of the above cases a sample-weighted correlation was chosen instead of artificially dichotomizing the moderators of time or proportion, which both represent continua.

3.7 Occupational prestige

In calculating occupational prestige, the Deng, Armstrong, and Rounds (2007) composite formula was used. Occupational prestige was calculated for studies that 1) reported the occupation of the sample and 2) had in their sample individuals who were all of the same occupation. Studies that reported multiple occupations were not used for this analysis (e.g., Blake & Beard, 1999; Friday & Friday, 2003; Makumbi, 1996). Data on vocational preparation, recognition, social status and salary were needed to obtain a prestige score for the occupations listed in each primary study. For the main occupation in each study, data on vocational preparation, recognition and social status were obtained from O*NET. For each study we used information about the occupation in O*NET that most closely approximated the occupation reported. For example, if the study reported “coach” we searched and found “coaches and scouts.” Specifically, a score on vocational preparation was found in the Job Zones section, the scale ranged from 1 (“little to no preparation”) to 5 (“extensive preparation”). In order to find scores for the remaining elements, it was necessary to go to the details tab first. A score for recognition was then found in the Work Values section. We used the extent to which recognition was part of the occupation’s work values; this scale theoretically ranged from 0 to 100, but either extreme was rarely reported. A social status score was found in the Work Needs section. Here again we used the extent to which social status was part of the occupation’s work

needs; this scale also theoretically goes from 0 to 100, but the extremes are rarely reported.

Data on mean annual salary were obtained from the Occupational Employment Statistics Survey (BLS, 2004b). Specifically we used the occupation profiles and searched for corresponding occupations according to SOC code. In keeping with the previous example, if a study reported “coach” as the occupation of their sample, we used the occupation profile “coaches and scouts” and recorded their mean annual salary. We then created z scores for each value above (i.e., recognition, social status, vocational preparation, and salary) and aggregated to form a prestige score for each occupation. Additionally a sample-weighted correlation was calculated to further assess the relationship between d values and occupational prestige scores.

4. RESULTS

4.1 Overall results for racial differences in job satisfaction

The overarching question in this study was whether there were racial differences in job satisfaction. Our results show that across 65 studies ($N = 29,560$) there is a small difference in job satisfaction across racial categories ($d = -0.13$), with Whites reporting a higher level of job satisfaction than Non-Whites and Blacks. Although the difference is quite small, the confidence interval still seems to suggest that the average true difference score is not zero. The credibility interval was large and included zero (-0.48 to 0.22), supporting the need to study moderators.

Our first hypothesis split the larger sample into studies that measured racial differences between Whites and Non-Whites and those that compared Whites and Blacks exclusively. Studies that contrasted Whites to Non-Whites revealed slightly smaller differences between races ($d = -0.09$) than the difference calculated based on all studies. The Non-White category for this analysis included all other racial categories outside of the White category (we note that including Asians with other minority racial groups may not be the most accurate racial breakdown). Future studies should breakdown the Non-White category even further. Studies contrasting Whites to Blacks revealed slightly larger differences between races ($d = -0.16$). Although the effect sizes tend to differ across racial groupings, the confidence intervals almost completely overlap with each other indicating there may not be a true difference between these two categorizations.

4.2 Mediators of the overall racial difference in job satisfaction

According to job characteristics theory (Hackman & Oldham, 1980), jobs that have more favorable job characteristics (e.g., less monotonous, more autonomous) will be

more satisfying. There is therefore reason to expect Black-White racial differences in job satisfaction, given the likely magnitude of the racial gap in job types. That is, we hypothesized that the reason race relates to job satisfaction is because of racial differences in job complexity, used here as a proxy for the direct measurement of job characteristics. Job complexity is a proposed mediator of the effect of race on job satisfaction. However at the individual level, we did not find a relationship between race and job complexity ($r = .00$)—a path that must exist in order to be able to infer a mediation effect (Baron & Kenny, 1986).

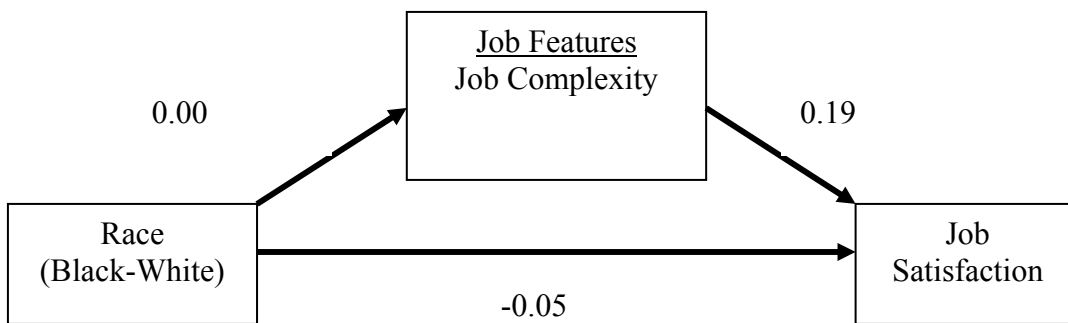


Figure 2. Results for the explanatory model of racial differences in job satisfaction

The mediation just discussed refers to the mediation model at the individual level, meaning that all calculated values were at the individual level. After looking at the relationship between race and job complexity at the job level ($r = -.55$), we believe there may be a difference between this mediation model and one at the job level. Figure 3 illustrates one way in which the job level correlation could become a nil individual level

correlation, despite a large group-level correlation (i.e., the SD of race within-groups was five times larger than the SD of race between-groups).

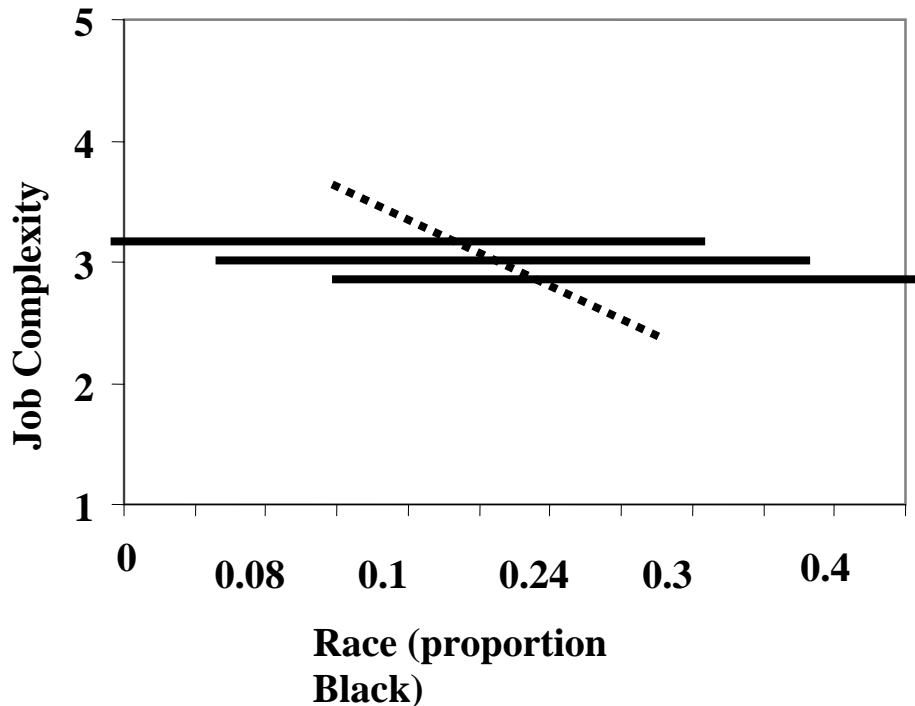


Figure 3. Illustration of $r_{x,y(\text{individual})} = .00$ while $r_{x,y(\text{between-jobs})} = -.55$

Hypotheses 4 and 5 suggested that there would be a relationship between the year in which the study was conducted and the size of the difference between races in job satisfaction. To test these hypotheses, two sample-weighted correlations were calculated: the correlation between year of data collection (for those studies that reported it) and the White-Non-White d value, and the correlation between year of publication and the d value. For year of data collection, we found there to be a small negative relationship ($r = -0.19$; $k = 35$). For the year of publication, we found there to be a moderate negative relationship ($r = -0.28$; $k = 65$). Negative values here mean that as the studies got closer to present day, the d value--or difference between the races--got more negative. The

results show that Whites are relatively more satisfied with their jobs than other races, supporting Hypothesis 5. When looking at the relationship between d and the year of publication (Figure 4) for the full set of studies ($k = 65$) we see that over time d values are slightly larger (more negative). To investigate this relationship further, we input both the minimum year of publication (1974) and the maximum year of publication (2006) into the regression equation, to find that the predicted d value was small and positive in the past ($\hat{d}_{1974} = .14$) but is large and negative in the present day ($\hat{d}_{2006} = -.33$). This result shows indirect support for idea of frames of reference. With increasing diversity in the workplace, there may be more use of *cross-race* frames of reference. *Cross-race* frames of reference might tend to allow for an increase in White employees' satisfaction in comparison to Black employees and a decrease in Black employees' satisfaction in comparison to White employees.

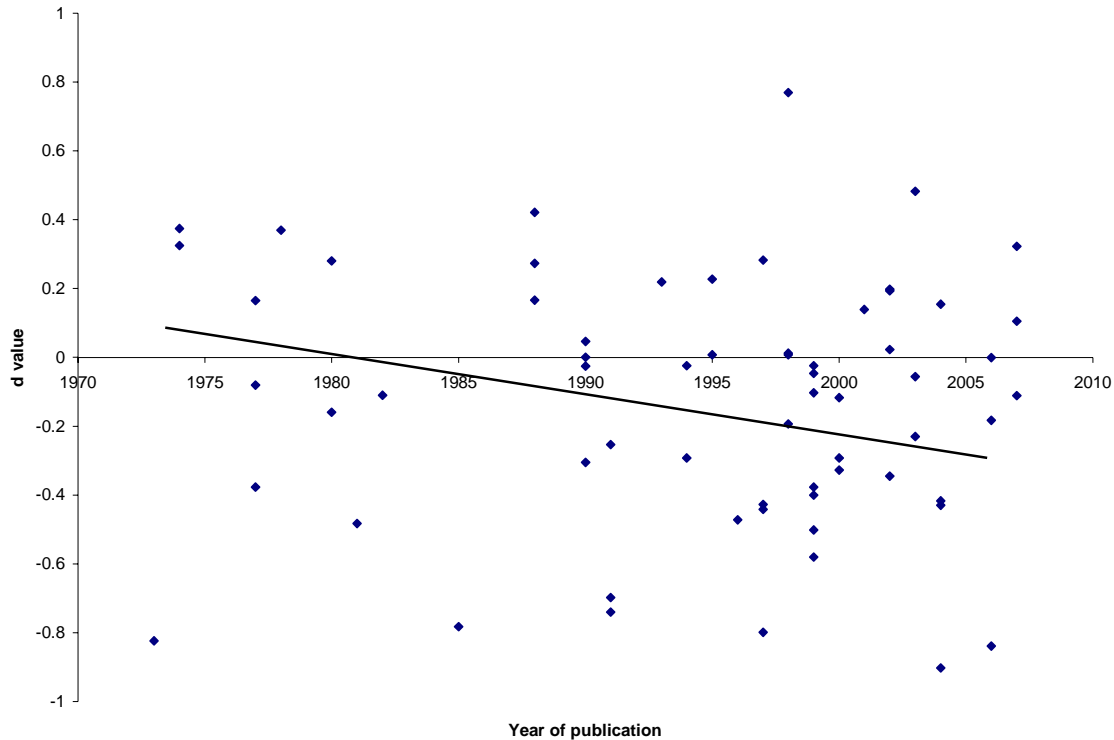


Figure 4. Relationship between year of publication and d value

4.3 Moderators of the overall racial difference in job satisfaction

Our sixth hypothesis concerned the various facets of job satisfaction. We found that contrary to our hypothesis, when looking at the pay and promotion facets of job satisfaction the differences between races ($d = 0.01$ and $d = -0.10$, respectively) were not larger than the differences for all of the other facets (co-worker: $d = -0.07$, supervisor: $d = -0.07$, work itself: $d = 0.02$). These results show virtually no differences between races with respect to job satisfaction facets.

Hypothesis 7 suggested that differences would be greater in studies conducted all at one organization. Results show that differences were slightly smaller for intra-organizational studies ($d = -0.08$) than for inter-organizational studies ($d = -0.13$). However, there was not a large difference between the two conditions, and in fact the

confidence intervals almost perfectly overlapped. One possible reason for this effect that we did not take into account before is range restriction of job satisfaction within a given organization. Schneider's (1987) attraction-selection-attrition (ASA) model generally states that individuals are differentially attracted to, selected by, and attrit from (leave) an organization. Attrition is affected by an individual's perceived fit within the organization: if they feel they do not fit in an organization they will leave. Natural attrition could lead to similarities of the individuals that stay in the organization. For example, individuals from the same organization may have similar job satisfaction, otherwise they may tend to leave the organization. This may explain the slightly smaller differences in job satisfaction for intra-organizational studies.

The next hypothesis was about the relationship between the proportion of minorities in an organization and the d value. This hypothesis stated that as the proportion of minorities in an organization increased we would see a decrease in the difference between races on job satisfaction. A sample-weighted correlation was calculated using only those studies that indicated their data had come from a single organization. The results showed that there was a moderate positive relationship ($r = 0.29, k = 14$). This would mean that when the proportion of minorities increases the d value is either smaller, or more positive, implying that either differences in job satisfaction decrease or Black employees were more satisfied when the proportion of minorities is larger in their organization, supporting hypothesis 8. Specifically we can see from Figure 5 that as the proportion of minorities increases we tend to see d values that are smaller, approaching zero. This would indicate that when the proportion of minorities gets larger, the differences in job satisfaction tend to shrink. This effect is

somewhat equivocal—it could show support for either an increase in minority job satisfaction or a decrease in White employees’ job satisfaction based on the increasing proportion of minorities in an organization. To further probe this effect, we input the minimum and maximum proportion Black values into the regression equation, to show that ($\hat{d}_{p(\text{Black})=.09} = -.13$) and ($\hat{d}_{p(\text{Black})=.81} = -.06$). Within the scope of our data we do not see positive d values, and can only show that when the proportion of Black employees is large the d value is smaller and close to zero. This then would not necessarily show that Black employees are more satisfied than White employees in these cases, but only that the racial gap in job satisfaction is closing.

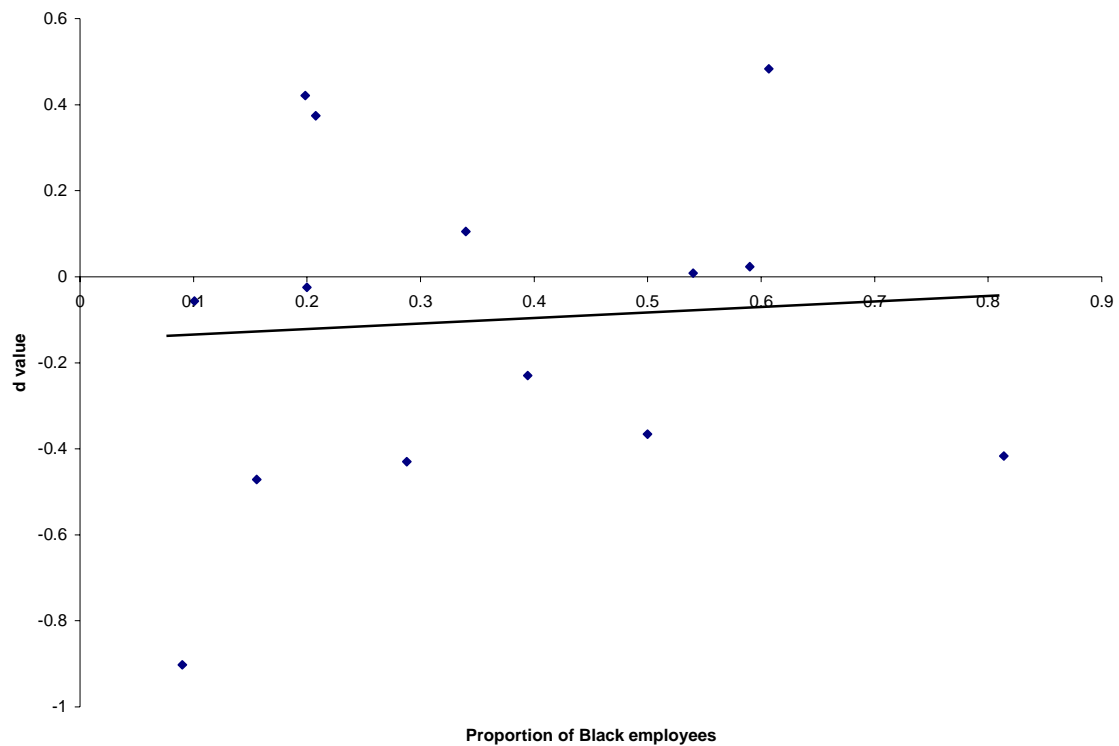


Figure 5. Relationship between proportion of Black employees and d value

Hypotheses 9 and 10 looked at the effects of occupational prestige on the relationships between race and job satisfaction. We found that for studies with occupations classified as “high” in occupational prestige the difference was moderate ($d = -0.13$) and for studies with occupations classified as “low” in occupational prestige the race difference was small ($d = -0.08$). The credibility intervals did almost completely overlap, indicating that there may not be a difference these two conditions. Additionally we calculated a sample-weighted correlation between prestige score and d value and found a virtually non-existent relationship ($r = 0.02$) indicating that occupational prestige did not have an effect on d value.

The final hypothesis addressed gender differences in the job satisfaction/race relationship. Analyses were run to test differences between males and females with respect to this effect. The initial result showed that there was a large negative effect for females ($d = -0.68$), indicating that for female samples there was a large difference in job satisfaction favoring Whites, and a relatively non-existent negative effect for males ($d = -0.09$), indicating virtually no difference in job satisfaction by race for male-only samples. When looking at the individual d values, one female-only study stood out as vastly larger than the rest. To be sure that the overall large d value was not driven completely by this outlier, we conducted a sensitivity analysis in which we recalculated the overall d value after taking out this one study. The results of the sensitivity analysis showed that there was still a decently large difference ($d = -0.56$) for female-only samples. Additionally, a visual scan of the seven primary studies included in the analysis shows a consistent trend of negative d values for each study. This result appears to be in contradiction of Sidanius and Pratto’s (1999) subordinate male target hypothesis (SMTH), which says that males

will be the target of discrimination as opposed to females. They concede that females will still experience gender discrimination but argue that arbitrary-set discrimination will be directed at males rather than females as previously described. Our result does however lend support for the idea of *double jeopardy*, wherein individuals who are both racial minorities as well as gender minorities will experience more discrimination (Beale, 1970). It would appear that Black female employees could indeed be less satisfied than their White female counterparts.

5. DISCUSSION AND CONCLUSIONS

Race has played a significant role in labor relations and economics throughout history. For this reason it is important to research the impact of this particular demographic variable on individuals at work. Specific to the realm of I/O psychology is the interaction of the individual with their work environment. Job satisfaction is an important component of the individual's work life. Specifically, job satisfaction is a psychological response to a person's job situation. Previous studies have looked at the intersection of these two areas, race and job satisfaction. Results have been mixed with studies showing both that: Whites are more satisfied with their jobs than Blacks, and that Blacks are more satisfied with their jobs than Whites, and even that there is no difference between races. For this reason, a meta-analysis of this effect was in order.

Generally speaking, our results show that even though there is only a small average difference between Whites and minorities, there is still a difference such that Whites are overall more satisfied with their jobs than minorities are.

With regard to the competing views of the job characteristics model and the Cornell model, we were unable to find support for mediation and thus could not support our hypotheses taking job complexity into account or controlling for it. When we looked at the mediation model, all calculations were at the individual-level (as opposed to the job- or company-level). There was no relationship between race and job complexity at this level, and thus no reason to conclude that job complexity would mediate the relationship between race and job satisfaction. As indicated earlier, a calculation at the job level showed a strong relationship between race and job complexity leaving us reason to believe that if the mediation model had been tested at the job level, the results would

have been very different. Given that our job level data would be based on aggregates across various sources, it stands to reason that the overall effect would be larger than the individual level effect (Ostroff, 1993). We suggest looking at these relationships (including the race-job complexity-job satisfaction mediation model) at the job level in future research. Additionally, we suggest that a more direct measure of job characteristics per the JCM should be used to conduct this analysis, as job complexity indexed through job titles may not be a complete measure.

Even though we could not address the competitive theory test (comparing job characteristics to frame of reference explanations) via mediational analyses, some indirect support was found for the Cornell Model when looking at the relationship between racial differences in job satisfaction and the proportion of Black employees in the organization as well as the year of publication and data collection. With regard to the proportion of Black employees in an organization, we found that when the proportion of Black employees in an organization was larger, the differences in job satisfaction were the smallest. This may be due to minority employees being more satisfied when there are more minorities in the organization or White employees being less satisfied when there are more minorities in the organization. The frame of reference idea would suggest that minorities would tend to be more satisfied with an increase in proportion of employees similar to themselves, but this may also necessitate a decrease in satisfaction for White employees when there is a decrease in the proportion of employees similar to themselves. Based on our data, it is not possible to tease out the underlying explanation for this effect. However, support for the idea that minority employees are more satisfied in an organization where the proportion of minorities is greater can be found in the literature

(Jackson, et al., 1995; Kanter, 1977). Specifically, an increase in the proportional representation of minorities in an organization lessens psychological stress for that group which in turn would lead to increased job satisfaction.

With regard to the year of data collection and publication, we predicted (under job characteristics theory) that Black employees would become more satisfied over time given increasing entrance to the workplace and to similar jobs as White employees. We found that in the last few years, the racial gap in job satisfaction has gotten larger in favor of White employees being more satisfied. In these cases there is indirect support for the Cornell Model given that even with increasing levels of diversity in the workplace and legislation calling for more equality of jobs across racial groups, one possible effect of increasing desegregation is that Black and White employees increasingly tend to use each other as *cross-race* frames of reference, which may tend to improve Whites' satisfaction and harm Blacks' satisfaction.

Our findings show that the various aspects of the job, pay, promotion, co-workers, supervisors, and the work itself do not affect the relationship between race and job satisfaction. Specifically, when looking at different aspects of the job, there are no aspects that Whites or Blacks tend to be more or less satisfied with. In addition, we found no difference according to source of the data (i.e., inter- versus intra-organizational samples). We also found no support for moderation based on the level of occupational prestige. The most prevalent moderation effects come from the gender of the individual.

The effect of gender found in this study, in which there is a large racial difference in female-only studies and a virtually non-existent difference in male-only studies, may be due to the social means of gaining status. This difference could potentially show

support for White women's ability to can gain a sense of increased social status through their association with White men, referred to as "status by association." In these cases, White women can overcome the lowered status ascribed to them by their female gender, and augment their status through their association with White men thus potentially leading to increased satisfaction. The large difference in job satisfaction could also show support for the concept of "double jeopardy" wherein Black women do not have a way to augment their social status and thus are ascribed a lower status both by being Black and by being female leading to lowered satisfaction (Beale, 1970). Given our data it is not possible to determine which effect is driving the large difference. This is a case where credibility intervals overlapped, however the degree of overlap was small.

5.1 Practical implications

Our study is important in that it speaks to the salience of race in the workplace and the use of race as a construct. Though there are examples of more objective proxies such as socioeconomic status being used in place of measuring race, our study implies that the more nebulous construct of race may have its own effect. Our study also informs research on racial differences in the job domain. It is thought that there is little left of the historical race differences and race-based disadvantages that there once were, but studies such as ours show that this may not be the case; minorities are continuing to be less satisfied with their jobs than their White counterparts. Harrison et al. (2006) showed that job attitudes are related to general work behaviors. Other studies show specifically that job satisfaction is related to a wide range of specific work-relevant outcomes such as performance (e.g., Fisher, 2003; Judge et al., 2001) turnover (e.g., Hulin, 1966) and various occupational health outcomes (e.g., Quine, 2001). If race has an impact on job

satisfaction it stands to reason that it could have an impact on many of the same work-related behavioral outcomes.

5.2 Limitations

One limitation in this study is the use of the DOT job complexity coding to determine the relationship between job satisfaction and job complexity. Whereas the rest of the correlations were estimated using meta-analytic methodology, this particular effect was not. Using differing methodologies for differing parameters of the mediation test can bring into question the comparability of the results. In addition, using job complexity to represent the JCM was less than ideal (cf. Judge et al., 2000).

Another major limitation is our inability to address the competitive theory test pitting the Job Characteristics Model against the Cornell Model via a mediational analysis. Future research should more directly measure whom each individual is using as a referent when evaluating her/his own job satisfaction. In addition, we were unable to calculate the job-level mediation analysis, and we acknowledge the need for such an analysis in future work.

5.3 Future research

Future research on the relationship between race and job satisfaction should explore individuals' frame of reference in a more direct manner. Studies should look at job satisfaction of both Black employees and White employees and ask directly about the frame of reference used when calculating this value, specifically whether the frame of reference is the same racial group or a different racial group. Shah (2000) showed that the loss of friends in a network, those individuals close to you as opposed to just structurally or professional important to your job, has a negative impact on individuals'

attitudes. The implication here is that those who are important and close to you have a different effect on you than those who are just your co-workers, your frame of reference, who you are comparing yourself to. Future research should address the kinds of referents employees are using when indicating their attitudes towards various aspects of their occupation or their workplace.

When looking at gender differences in the relationship between race and job satisfaction, it is advisable to search for potential mediators of this relationship. Buchanan and colleagues have found that Black women encounter forms of workplace mistreatment that are unique to their status as both the sexual and the racial minority (Buchanan, 2005; Buchanan & Ormerod, 2002). This experience of workplace mistreatment is just one example of potential mediating factors that might explain why the race-job satisfaction relationship is different for females as opposed to males. Research should more fully explore this effect. In addition, future studies should attempt a replication to find further support for the both the prestige and time frame effects. Studies should explore potential mediators of these relationships.

Lastly, we found some support for the differing effects of race on job complexity at the individual versus the job level. We advocate further research in the area of job-level analyses of the JCM, as opposed to continued research on job characteristics measured exclusively at the individual level.

5.4 Conclusion

Results of the current study show a moderate difference between Black and White employees such that Whites tend to be more satisfied. Little support was found for moderators of this relationship (See Tables 1-2). Exceptions include time frame of the

study and proportion of Black employees in the organization. Results showed no support for the mediation of the race-job satisfaction relationship by job complexity at the individual level, but show potential at the job level (See Tables 3-4). In an attempt to explain job satisfaction in terms of a competitive theory test, we find some support for the frame-of-reference approach to job satisfaction.

Table 1

Meta-Analytic Results and Moderator Analyses

Moderator	<i>k</i>	<i>N</i>	$\bar{d}_{uncorrected}$	$\bar{d}_{corrected}$	<i>SD_d</i>	CV _{80%}	CI _{95%}
Overall effect size	65	29,560	-0.11	-0.13	0.27	-0.48 to 0.22	-0.22 to 0.01
Race category							
Black vs. White	32	15,491	-0.14	-0.16	0.32	-0.58 to 0.25	-0.33 to 0.05
Non-White vs. White	33	14,069	-0.09	-0.09	0.24	-0.40 to 0.02	-0.20 to 0.02
Job satisfaction facet							
Pay	17	6,431	0.00	0.01	0.38	-0.49 to 0.05	-0.26 to 0.27
Promotion	19	7,180	-0.08	-0.10	0.33	-0.52 to 0.32	-0.36 to 0.19
Co-workers	19	5,362	-0.07	-0.07	0.23	-0.38 to 0.22	-0.24 to 0.10
Work itself	14	2,878	0.02	0.02	0.42	-0.53 to 0.56	-0.28 to 0.31
Supervisor	15	5,846	-0.07	-0.07	0.32	-0.49 to 0.33	-0.38 to 0.24
Source of the data							
Inter- organization	50	25,847	-0.11	-0.13	0.27	-0.59 to 0.22	-0.24 to 0.01
Intra- organization	14	3,938	-0.08	-0.08	0.25	-0.41 to 0.23	-0.26 to 0.10
Occupation prestige							
High prestige	19	5,630	-0.12	-0.13	0.21	-0.41 to 0.14	-0.28 to 0.03
Low prestige	19	9,116	-0.07	-0.08	0.29	-0.45 to 0.28	-0.11 to 0.26
Sex differences							
Male	10	3,799	-0.06	-0.09	0.37	-0.57 to 0.39	-0.38 to 0.26
Female	7	1,034	-0.58	-0.68	0.32	-1.23 to -0.24	-1.02 to -0.21

Note: Negative values indicate White employees are more satisfied.

Table 2

Meta-Analytic Sample-weighted Correlations for Moderators

Moderator	<i>k</i>	<i>N</i>	<i>r</i> *
Year of Publication	65	29,560	-0.28
Year of Data Collection	35	22,439	-0.19
Proportion of Black Employees	14	3,938	0.29
Occupational Prestige	38	14,746	0.02

Note: Negative values indicate White employees are more satisfied.

* Correlation of moderator with effect size *d*

Table 3

Additional Correlations for Mediation Analyses

Job Complexity Mediator	<i>k</i>	<i>n</i>	Mean <i>r</i> _{uncorrected}	Mean ρ	SD ρ	CI lower	CI upper
Correlation with race*	--	--	0.00	--	--	--	--
Correlation with Job satisfaction	20	13,287	0.17	0.19	0.05	0.16	0.22

*correlation calculated from census data

**Source: Zimmerman, 2008

Table 4

Regression of Job Satisfaction onto Race and Mediators (Dependent variable: Job satisfaction)

	Regression weights (betas)
Job Complexity	-0.19
Race (B=1, W=0)	-0.05
R ²	0.04
Adjusted R ²	0.04

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APPENDIX A

Codesheet for Overall Meta-analysis

CODESHEET for Meta-Analysis
(Use a separate coding sheet for each *SAMPLE*)

ARTICLE:

Author(s): _____
 (e.g., *Brief & Aldag*)

Year of publication: _____
 (e.g., *1987*)

Journal: _____
 (e.g., *Journal of Applied Psychology*)

Volume (& Issue): _____
 (e.g., *17(3) or 17*)

Pages: _____
 (e.g., *361-398*)

SAMPLE:

Sample size (N): _____
 [number of partic. included in statistical analyses, might be mean or median reported at bottom of correlation table; might be different from the N reported in the abstract. When the number is a *mean N* or a *median N*, please specify this. e.g., *215 (median N)*]

N (or percent) White = _____ *N* (or percent) Black = _____ *N* (or percent) Other = _____
 _____ *N* (or percent) Non-white= _____

Gender (# Female): _____ (**# Male:** _____)

Job Title/ Occupation: _____
 (In case of *multiple job titles/occupations*, indicate the number of job titles/occupations and follow with % of sample in parentheses. e.g., *3-insurance sales (75%), secretaries (20%), managers (5%).*)

Job Level (% non-supervisor): _____

Type of organization: _____

Racial composition of the organization (calculated from N's for Black, White, & Other):

Country: _____

(In case of *multiple countries*, indicate the number of countries and follow with % in parentheses. e.g., *2-Belgium (43%), Germany (57%).*)

Region/State/City: _____
 (e.g., Northeastern US/Connecticut/New Haven, In case of *multiple locations*, indicate the number of locations and follow with % in parentheses. e.g., 2-Toledo, OH (70%), Southwest US (30%).)

Year data was collected: _____

Response Rate: _____
 (Report % response rate. If % is unavailable, report number of surveys sent out and number received, and number with usable data. e.g., 150 surveys were sent out, 73 were received, and 68 had usable data.)

METHOD:

Mode of data collection: _____
 [Respondents contacted through (1) Employing organization (prior negotiation with specific org), or (2) Cold calls (from directories, associations, etc.)]

Did the data all come from one source: _____
 [Did the authors use a survey that pooled information from (1) different organizations or (2) all from one organization.]

MEASURES:

VARIABLE	MEASURE (citation)	Number of items	Response Options	Reliability (type)	Source (self, supervisor, records)	Other (type of measure)
RACE						
Job Satisfaction (if applicable list data for each satisfaction facet (pay, superv., career) on a separate row")						
e.g., <i>Job satis.</i>	<i>MSQ-short (Weiss et al, 1967)</i>	<i>20</i>	<i>5-point Likert</i>	<i>.63 (alpha)</i>	<i>self</i>	<i>facet composite</i>
e.g., <i>Race</i>	<i>White=1; Black=2</i>	<i>1</i>	<i>"African American" "Caucasian American"</i>		<i>HR records</i>	

RELIABILITY TYPES: Cronbach's alpha, inter-rater reliability, consistency over time

SOURCES: self-report, supervisor ratings, peer ratings, spouse ratings, company records

TYPES OF MEASURES: Satisfaction = global, facet composite, not known;

Race = White vs. Non-White, White vs. Black

Effect Size: Please record the correlation, means, and SD's of the variables listed above.

	Race	White Mean	Black Mean	White SD
Black SD				
V1. Satisfaction	_____	_____	_____	_____

* PHOTOCOPY THE METHOD SECTION AND THE CORRELATION MATRIX. PASTE TABLE BELOW AS NEEDED. THANK YOU!

APPENDIX B

Summary of primary studies included in the meta-analysis

Study	<i>N</i>	<i>r</i>	<i>r_{js}</i>	<i>p</i>	JS Measure	Race Category	Occupation	Prestige Score	Year of Data Collection	Facets represented
Al-Qassem (1999)	208	-0.01	0.84	-0.01	TJS ¹	W-NW	Teachers	-0.03	1998	P ²³ , PR ²⁴ , C ²⁵ , S ²⁶ , W ²⁷
Barnett (1997)	350	-0.14	0.78	-0.16	U ²	W-NW	Student Affairs Mid Managers	3.75	1996	
Berrian (2007)	170	0.16	0.72	0.19	JDI ³	W-B	Faculty	2.68		
Blake & Beard (1999)	195	-0.2	0.96	-0.2	U, PSQ ⁴	W-B	Various			P
Bowling et al. (2006)_T1_Job	215	0	0.72	0	JDS ⁵ , CS ⁶	W-NW	Various		2001	
Brice (1998)	140	0.32	0.88	0.34	TSS ⁷	W-B	Teachers	-0.03	1997	
Clemens (1990)	128	0.02	0.81	0.02	JDI	W-B	Hospital Work	-4.00		P, PR, C, S, W
Cox & Nkomo (1991) female	226	-0.35	0.62	-0.44	OS ⁸	W-B	Various		1987	PR
Cox & Nkomo (1991) male	503	-0.31	0.62	-0.39	OS	W-B	Various		1987	PR
Crawford (1988)_male	113	0.08	0.81	0.09	U	W-B	Human Service Workers	-2.08		
Culver et al. (1990)	512	0	0.85	0	PTO ⁹	W-B	Teachers	-0.03	1986	

Study	<i>N</i>	<i>r</i>	<i>r</i> _{js}	<i>p</i>	JS Measure	Race Category	Occupation	Prestige Score	Year of Data Collection	Facets represented
Cunningham & Sagas (2004)	382	-0.19	0.90	-0.2	G ¹⁰ , KF ¹¹	W-NW	Football Coaches	0.86	2002	PR
Davis (1985)	242	-0.36	0.81	-0.4	U	W-B	Faculty	2.68	1977	
Ferris et al. (1996)	514	-0.17	0.94	-0.17	JDI	W-NW	Various			
Finley (2007)	301	-0.05	0.9	-0.05	U	W-NW	Asst Principals	1.67		P, C, S
Friday & Friday (2003)	117	0.23	0.81	0.25	JDI	W-B	Various			PR, C, W
Friday et al. (2004)	247	-0.16	0.81	-0.18	JDI	W-NW	Patrol Officers	-0.68		C
Frone et al. (1994)	366	-0.13	0.81	-0.14	U	W-NW	Various		1992	
Gavin & Ewen (1974)	390	0.15	0.81	0.17	UF ¹²	W-B	Various – Blue collar			P, PR, C, W
Gilson (2001)	1071	0.05	0.72	0.06	QS ¹³	W-NW	Various		1998	
Greenhaus et al. (1990)	828	-0.15	0.88	-0.16	U	W-B	Various – Managers			
Hass (2003)	543	0.06	0.81	0.07	MSQS ¹⁴	W-NW	Extension Faculty	3.75	2001	
Igbaria & Wormley (1992)	138				G		MIS Managers	2.59		
Jones & Schaubroeck (2004)	151	-0.25	0.78	-0.28	JDS	W-NW	Hospital Staff	-4.00		
Jones et al. (1977)	1617	0.05	0.85	0.05	PNS ¹⁵ , HL ¹⁶	W-B	Navy Officers		1973	P, PR, S

Study	<i>N</i>	<i>r</i>	<i>r</i> _{js}	<i>p</i>	JS Measure	Race Category	Occupation	Prestige Score	Year of Data Collection	Facets represented
Jones, DP (2002)	1546	-0.12	0.81	-0.14	UF	W-NW	College Housing Officer	-2.63	2002	P, PR, C, S
Katzell, et al. (1974)	188	0.16	0.81	0.18	UF	W-B	Various – Blue Collar			PR, C, W
Kaye et al. (1999)	161	-0.27	0.63	-0.34	WA ¹⁷	W-NW	Various – Community Service		1987	
Kovner, et al. (2006)	1342	-0.20	0.86	-0.22	QS	W-B	Registered Nurses	-2.60	2001	
Lambert (1998)	1704	0.01	0.84	0.01	U	W-NW	Prison Service	-2.57	1994	
Lawrence (2004)	158	0.05	0.81	0.05	UF	W-B	Athletic Director	0.86	2003	P, C, S
Lopez & Greenhaus (1978)	523	0.18	0.87	0.19	ISJ ¹⁸	W-B	Teachers	-0.03		
Makumbi (1996)_female	167	-0.53	0.81	-0.59	JDI	W-B				P, PR, C, S, W
Mathieu & Kohler (1990)	180	-0.01	0.89	-0.01	MSQS	W-NW	Transit Operator	-3.17		
McCracken (2002)	326	0.05	0.87	0.06	JDI	W-NW	Faculty	2.68	2001	P, PR, C, S, W
McNeely (1988)	1247	0.12	0.81	0.14	IJS, MIJS ¹⁹	W-NW	Human Service Workers	-2.08	1983	

Study	<i>N</i>	<i>r</i>	<i>r</i> _{js}	<i>p</i>	JS Measure	Race Category	Occupation	Prestige Score	Year of Data Collection	Facets represented
Mikell (1981)	60	-0.23	0.81	-0.26	MSQL ²⁰	W-B	Various – Management			P, PR, C, S, W
Miltuiovich (1977)	460	-0.04	0.81	-0.04	JDI	W-B	Various			P, PR, C, S, W
Mobley et al. (1994)	589	-0.01	0.81	-0.01	U	W-B	Lawyers	4.21	1989	
Moore (1999)	498	-0.07	0.98	-0.08	MMSQ ²¹	W-NW	School Psychologists	2.16	1997	
Nayak (2002)	61	0.01	0.86	0.01	MOAQ ²²	W-NW	IRS Procurement	-2.44		
Niemann & Dovidio (1998)	438	-0.1	0.81	-0.11	U	W-NW	Faculty	2.68		
Novack (1999)_female	145	-0.18	0.69	-0.22	U	W-NW	University Admin	3.75	1998	
Novack (1999)_male	127	-0.02	0.69	-0.03	U	W-NW	University Admin	3.75	1998	
O'Reilly & Roberts (1973)	138	-0.38	0.81	-0.42	JDI	W-NW	Nurses	-2.60		P, PR, C, S, W
Orpen (1980)	159	0.14	0.81	0.15	IJS	W-B	Clerk	-3.69		
Orpen (1982)	183	-0.05	0.81	-0.06	IJS	W-B	Clerk	-3.69		
Rowe (2003)	186	-0.11	0.81	-0.12	JDI	W-NW	Revenue Workers	-2.19	2002	C, W
Salazar (2000)_study1	204	-0.16	0.82	-0.17	U	W-NW	Various – Hotel Employees			

Study	<i>N</i>	<i>r</i>	<i>r</i> _{js}	<i>p</i>	JS Measure	Race Category	Occupation	Prestige Score	Year of Data Collection	Facets represented
Salazar (2000)_study2	338	-0.14	0.82	-0.16	U	W-NW	Various – Hotel Employees			
Shiflett (1988)	272	0.17	0.81	0.18	JDI, MSQS	W-B	Soldiers			P, PR, C, S, W
Silver et al. (1997)	68	-0.35	0.88	-0.37	IJS	W-B	Social Work Supervisors	0.43		
Sincore-Guinn (1998)	138	0	0.81	0	JDI	W-NW	Various			P, PR, C, S, W
Somers & Birnbaum (1999)	154	-0.05	0.81	-0.06	QS	W-B	Various – Professional Patient Care			
Taylor (2003)	348	-0.02	0.82	-0.02	U	W-NW	Nurses	-2.60	1994	
Thomas & Asunka (1995)	840	0	0.81	0	U	W-NW	Faculty	2.68	1992	
Tuch & Martin (1991)	2517	-0.08	0.81	-0.09	U	W-B	Various		1987	
Vecchio (1980)	2569	-0.05	0.81	-0.05	U	W-B	Various		1974	
Vecchio (1995)	702	0.07	0.81	0.08	U	W-NW			1991	
Victoriano (2000)	42	-0.04	0.81	-0.05	MSQS	W-B	Transition Coordinator	2.89	1999	
Washington (2006)	215	-0.09	0.81	-0.1	MSQL	W-NW	TRIO Directors	3.75	2005	P, PR, C, S
Weaver (1977)	632	-0.12	0.81	-0.13	U	W-B	Various		1974	

Study	<i>N</i>	<i>r</i>	<i>r</i> _{JS}	<i>p</i>	JS Measure	Race Category	Occupation	Prestige Score	Year of Data Collection	Facets represented
Wells (1997)	67	0.14	0.75	0.16	QS	W-NW	Halfway House Personnel	0.05	1993	
Wesolowski & Mossholder (1997)	124	-0.16	0.79	-0.18	JDS	W-B	Various – Service Work			
West (1993)	103	0.11	0.81	0.12	JDI	W-B	Personnel Services			P, PR, C, S, W
Wright & Bonett (2007)	112	0.05	0.77	0.06	UF	W-NW	Various - Management			

Note. Negative values indicate White employees are more satisfied.

¹ Teacher Job Satisfaction, ² Unique to that study, ³ Job Descriptive Index, ⁴ P Satisfaction Questionnaire, ⁵ Job Diagnostic Survey, ⁶ Adams, 1999 Career Satisfaction, ⁷ Teacher Satisfaction Survey, ⁸ Overall Satisfaction, ⁹ included in Purdue Teacher Opinionnaire, ¹⁰ Greenhaus et al., 1990, ¹¹ Kaplan & Ferris, 2001, ¹² Unique-faceted, ¹³ Quinn & Staines, 1979, ¹⁴ Minnesota Satisfaction Questionnaire short form, ¹⁵ Porter needs strength, ¹⁶ Hackman & Lawler, ¹⁷ Work Attitudes, ¹⁸ Index of Job Satisfaction, ¹⁹ Morse Index of Intrinsic JS, ²⁰ Minnesota Satisfaction Questionnaire Long form, ²¹ Modified MSQ, ²² Michigan Organizational Assessment Questionnaire, ²³ Pay, ²⁴ Promotions, ²⁵ Co-Workers, ²⁶ Supervisors, ²⁷ work itself

APPENDIX C

Formulas used for analyses

Convert d to r

$$r_{pb} = \frac{d}{\sqrt{(1/p(1-p)) + d^2}}$$

Credibility interval

$$r_c \pm 1.28 * SD_\rho$$

r corrected for unreliability of dv

$$ES' = \frac{ES_r}{\sqrt{r_{yy}}}$$

Confidence interval

$$r \pm 1.96 * SE_r$$

Average r

$$\bar{r} = \frac{\sum (N_i r_i)}{\sum N_i}$$

Observed variance in r

$$s_r^2 = \frac{\sum [N_i (r_i - \bar{r})^2]}{\sum N_i}$$

Estimated sampling error variance

$$s_e^2 = (1 - \bar{r}^2)^2 / (\bar{N} - 1)$$

Estimated variance in rho

$$\sigma_\rho^2 = s_r^2 - s_e^2$$

Mean p

$$\bar{p} = \frac{p \times n}{\sum N}$$

Convert r to d

$$d = \frac{r}{\sqrt{(1-r^2)(p(1-p))}}$$

Standard error

$$SE = SD_{rc} / \sqrt{k}$$

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