Perceived Workplace Racial Discrimination and its Correlates: A Meta-Analysis

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Abstract

We combine the interactional model of cultural diversity (IMCD) and relative deprivation theory to examine employee outcomes of perceived racial discrimination at work. Using 79 effects sizes from published and unpublished studies, we meta-analytically examine the relationships between perceived racial discrimination and several important employee outcomes that have potential implications for organizational performance. In response to calls to examine the context surrounding discrimination, we also test whether the severity of these outcomes depends on changes to employment law that reflect increasing societal concern for equality and on the characteristics of those sampled. Perceived racial discrimination was negatively related to job attitudes, physical health, psychological health, organizational citizenship behavior, and perceived diversity climate, and positively related to coping behavior. The effect of perceived racial discrimination on job attitudes was stronger in studies published after the Civil Rights Act of 1991 was passed than before. Results provide some evidence that effect sizes were stronger the more women and minorities were in the samples, indicating that these groups are more likely to perceive discrimination and/or respond more strongly to perceived discrimination. Our findings extend the IMCD and relative deprivation theory to consider how contextual factors including changes to employment law influence employee outcomes of perceived workplace discrimination.

Keywords: racial discrimination, job attitudes, physical health, psychological health, diversity climate

Perceived Workplace Racial Discrimination and its Correlates: A Meta-Analysis

Discrimination is defined as denying equal treatment to individuals because of their group membership (Allport, 1954). Title VII of the Civil Rights Act forbids employment discrimination on the basis of race, color, sex, religion, and national origin (EEOC, 2014a). In 1991, the Act was amended to expand the remedies available to victims, include jury trials, and describe disparate impact. Despite laws put into place to protect employee rights and an increase in corporate investments in diversity and equality management practices (Richard, Roh, & Pieper, 2013), people continue to experience workplace discrimination (Dipboye & Colella, 2005; EEOC, 2014b; Goldman, Gutek, Stein, & Lewis, 2006; Tomaskovic-Devey, Thomas, & Johnson, 2005). In 2013, the government agency that enforces Title VII, the Equal Employment Opportunity Commission (EEOC), received 93,727 discrimination charges, a 15% increase from ten years prior. Of these, complaints of racial discrimination were the most prevalent, with 35.3%, or 33,068 claims, made during the year (EEOC, 2014b). Furthermore, total monetary awards to racial discrimination victims reached a record $112.7 million in 2013 (EEOC, 2014c). In the course of the 22 years since the passage of the Civil Rights Act of 1991, the EEOC has received almost 670,000 race discrimination charges and reports monetary awards of just over $1.4 billion to victims of racial discrimination (EEOC, 2014c).

What these statistics do not show, however, are the associated costs to employers who discriminate. Employment discrimination can impact an employer's ability to recruit qualified individuals, retain top talent, improve performance, and market products or services to consumers. Manifesting in many forms (e.g., racial discrimination), it has been linked to a host of employee problems including stress, job dissatisfaction, and turnover intent (Dipboye & Colella, 2005; Gee, 2002; Triana, García, & Colella, 2010), which when aggregated can affect

the organization's success (Lepak, Liao, Chung, & Harden, 2006; Messersmith, Patel, & Lepak, 2011). For these reasons, it is important to investigate the outcomes of an employee's perception that he/she is discriminated against at work on the basis of race.

We integrate the interactional model of cultural diversity (IMCD; Cox, 1994) with relative deprivation theory (Crosby, 1976) to explain the relationship between perceived workplace racial discrimination and employee outcomes. Specifically, we use 79 effect sizes from published and unpublished studies to conduct a meta-analysis of this relationship. We chose to focus on the employee outcomes of job attitudes, physical health, psychological health, organizational citizenship behavior (OCB), perceived diversity climate, and coping behavior because they: (a) pertain to the workplace, with direct implications for the organization's bottom line and (b) are focal outcomes in the IMCD and relative deprivation theory.

We also examine theory-based moderators of the perceived racial discrimination—employee outcome relationship. First, we use the IMCD to predict that the percentage of minorities (racial/ethnic and women) in the sample influences the severity of the outcomes of perceived racial discrimination, as minorities have stronger identity structures (Cox, 1994; Phinney, 1992) and may be more susceptible to discrimination because of the history of discrimination against minority groups in the U.S. (Boswell, 1986; Chou & Feagin, 2010; Feagin & Sikes, 1994; Gonzalez, 2000; Jahoda, 1975; Spicer, 1969). These factors should make them more likely to perceive discrimination (Kossek & Zonia, 1994) and/or respond more strongly to it. Next, we use relative deprivation theory to explain how social norms and dictates—a contextual factor— moderates the magnitude of perceived racial discrimination's effect on outcome variables such that it varies with changes in societal concern for justice corresponding to the passage of Title VII in the Civil Rights Act of 1991. As such, we answer calls to examine

discrimination in its context. Emphasizing the benefits of considering context in organizational behavior research, Johns (2006, p. 388) stated, "…if we do not understand situations, we will not understand person-situation interactions." Also, the context in which discrimination occurs is an important dimension to what Goldman et al. (2006, p. 815) identify as an emerging feature of discrimination research in "how parties define and create the discrimination sensemaking experience."

Our study makes several theoretical contributions. We expand the IMCD (Cox, 1994) and relative deprivation theory (Crosby, 1976) to consider how a societal contextual factor, specifically changes in employment law, influences the outcomes of perceived racial discrimination at work. Prior research on the consequences of perceived racial discrimination has largely adopted an individual-lens emphasizing factors such as one's capacity to cope with discrimination (Noh & Kaspar, 2003), level of self-esteem (Fischer & Shaw, 1999), and core self-evaluations (Wagstaff, Triana, Kim, & Al-Riyami, in press) as moderators. Furthermore, the IMCD considers individual, group, and organization factors that influence the outcomes of perceived discrimination at work, but it is silent on the role of the broader societal context. In turn, we expand the IMCD to consider that employee outcomes of perceived discrimination may be influenced by the societal context and emphasize the relevance of relative deprivation theory (Crosby, 1976, 1984) in the study of perceived discrimination and its outcomes. We propose that employment discrimination theory should consider how changes in the legal, political, and social context can influence employees' thresholds for feeling deprived of fair treatment. Finally, our focus on workplace racial discrimination answers calls for discrimination research on employee samples in real-world work settings that are covered by Title VII of the Civil Rights Act as opposed to laboratory settings (Dipboye, 1985; Dipboye & Colella, 2005; Goldman et al., 2006).

In their review of the discrimination literature, Goldman et al. (2006) found that the majority of studies (26 out of 36) were based on experiments using student participants reading vignettes. "Vignettes and 'paper people' stimulus materials are effective for eliciting information about what can happen in organizations (i.e., how a victim might react to harassing behavior), but they do not necessarily show what *actually* happens in organizations" (Goldman et al., 2006, p. 814).

Our study also has practical benefits for organizations. When employees file racial discrimination lawsuits, employers may face millions in legal expenses as well as irreparable damage to public images (King & Spruell, 2001). While employers cannot prevent every discriminatory encounter, understanding what external contextual factors may influence the severity of perceived racial discrimination can help them prepare and take steps to prevent it.

Finally, we present the most comprehensive meta-analysis on the effects of perceived racial discrimination at work on employee outcomes (see Table 1 for a list and description of relevant meta-analyses). Our study is unique in that we focus only on discrimination occurring in the workplace and include multiple racial or ethnic groups, whereas previous meta-analyses have either included discrimination occurring in non-work contexts (e.g., discrimination in everyday life) or been limited to a single racial or ethnic group (e.g., Asians, Latina/os). We also go beyond the recent meta-analysis by Jones, Peddie, Gilrand, King, and Gray (in press) by including additional employee outcomes (i.e., OCBs, perceived diversity climate, and coping behavior). Our meta-analysis is further distinguished from prior work given its larger number of effect sizes from studies that span between 1980 and 2013, some of which have not been considered previously. The broader scope of articles across time allows us to statistically compare effect sizes before and after the Civil Rights Act of 1991, something no other discrimination meta-analysis has examined to date.

Theory and Hypotheses

Key Definitions of the Variables Investigated

We use *race* to encompass the social category of racial/ethnic background (as opposed to genetic or biological categories; Gilroy, 1998; U.S. Census Bureau, 2008). *Job attitudes* are defined as feelings toward one's job including job satisfaction, commitment, turnover intentions (Herrbach, 2006; Mathieu & Zajac, 1990), and perceived fairness (Colquitt, Conlon, Wesson, Porter, & Ng, 2001). Based on a prior meta-analysis (i.e., Pascoe & Richman, 2009), we define *psychological health* to include stress, mental health, anxiety, negative affect, self-esteem, life satisfaction, and depression. We define *physical health* to include blood pressure, bodily pain, general physical health, illness, and drug or alcohol use (Pascoe & Richman, 2009). *Organizational citizenship behavior* (OCB) is "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate, promotes the efficient and effective functioning of the organization" (Lee & Allen, 2002; Organ, 1988, p. 4). *Perceived diversity climate* is defined as individual employees' impressions of an organization's actions that indicate that the organization cares about diversity and strives to create an inclusive environment for all demographic groups (Avery, McKay, Wilson, & Tonidandel, 2007; Mor Barak, Cherin, & Berkman, 1998, Triana et al., 2010). Finally, we define *coping behavior* to include initiation of problem-solving, confrontation of the perpetrator, engaging with others who may offer support, and filing grievances (Groth, Goldman, Gilliland, & Bies, 2002; Knapp, Faley, Ekeberg, & Dubois, 1997).

Perceived Workplace Racial Discrimination and Employee Outcomes

We integrate the IMCD (Cox, 1994) and relative deprivation theory (Crosby, 1976) to examine perceived racial discrimination in the workplace and its employee outcomes. The IMCD

(Cox, 1994) proposes that the diversity climate in an organization, which is collectively determined by individual, group, and organization factors, influences employee outcomes as well as organizational outcomes. Among the individual-level factors included in the IMCD are employees' experiences with prejudice in the organization and their own identity groups. While the IMCD includes the words "cultural diversity" in its title, the model is meant to apply to many kinds of diversity at work including race, sex, and age among others.

Relative deprivation theory (Crosby, 1976) states that individuals' feelings of being deprived of something are anchored to standards of fair treatment, which are informed by the context in which the deprivation occurs. It identifies five preconditions for an individual to feel that he/she has been treated unfairly; the individual must (1) perceive that others (from one's own or different group) possess a particular outcome, (2) desire the outcome, (3) feel entitled to the outcome, (4) believe that the outcome is practically obtainable, and (5) be unwilling to assume personal responsibility for not possessing the outcome (Crosby, 1976). When all these are present, the resulting feeling of deprivation has been shown to result in psychological stress, job dissatisfaction, and various coping behaviors that may be constructive or destructive to the self and others (see Crosby, 1976, for a review). Crosby (1976) also identified several factors that determine whether some or all of these preconditions are met including personality, past experience, immediate environmental factors, societal norms, and biological needs. Of interest here is the societal norm factor, as it is one of the more conceptually interesting determinants proposed to influence all five preconditions. However, it is "difficult to measure" (Crosby, 1976, p. 96) and has received little to no research attention. We take a step toward addressing this gap.

To better understand the relationship between perceived workplace racial discrimination and a host of employee outcomes, we integrate the IMCD and relative deprivation theory. The

IMCD provides a backdrop on which to explain the relationship between perceived workplace racial discrimination and employee outcomes including job attitudes, physical health, psychological health, perceived diversity climate, organizational citizenship behavior, and coping behavior. However, it is silent about the societal factors that can influence the perceived racial discrimination—employee outcome relationship. We therefore rely on relative deprivation theory to explain how changes in employment laws, which reflect shifts in societal norms, can influence the magnitude of this relationship.

To start, the IMCD predicts that perceiving discrimination at work will damage how employees feel about their work and employer (Cox, 1994). Studies have shown that perceived racial discrimination has a negative effect on job satisfaction (Burke, 1991; Ensher, Grant-Vallone, & Donaldson, 2001; Hopkins, 1980; Sanchez & Brock, 1996; Valentine, Silver, & Twigg, 1999), commitment (Burke, 1991; Ensher et al., 2001; Sanchez & Brock, 1996; Triana et al., 2010), and integration at work (Burke, 1991), and a positive effect on turnover intent (Foley, Kidder, & Powell, 2002; Raver & Nishii, 2010; Triana et al., 2010). Research has also revealed that perceived racial discrimination is related negatively to perceptions of fairness (Del Campo & Blancero, 2008; Foley et al., 2002; Hopkins, 1980) and positively to job concerns (de Castro, Gee, & Takeuchi, 2008) and absenteeism (Jones, Ni, & Wilson, 2009). In turn, we expect perceived racial discrimination at work to be negatively related to job attitudes.

The IMCD and relative deprivation theory both predict that perceived racial discrimination at work will be negatively related to employees' psychological and physical health. Although the IMCD does not explicitly address psychological and physical symptoms, it generally predicts that the effects of perceived discrimination at work would negatively affect employee health (Cox, 1994). Experiencing psychological and physical side effects is also a

likely outcome resulting from the frustration of being deprived of fair treatment (Crosby, 1976, 1984). Empirical work concurs, as perceived racial discrimination has been linked to psychological outcomes such as tension and stress at work (Wated & Sanchez, 2006), post-traumatic stress disorder (Buchanan, 2002), psychological symptoms (Asakura, Gee, Nakayama, & Niwa, 2008), lower psychological well-being (Jasinskaja-Lahti, Liebkind, & Perhoniemi, 2006), and general mental health (Rospenda, Richman, & Shannon, 2009). Studies have also shown that perceived racial discrimination is associated with physical health outcomes such as greater bodily pain (Burgess, Grill, Noorbaloochi, Griffin, Ricards, van Ryn, & Partin, 2009), lower self-rated health (Asakura et al., 2008), health conditions (de Castro et al., 2008; Jasinskaja-Lahti et al., 2006; Jasinskaja-Lahti, Liebkind, & Perhoniemi, 2007), hypertension (Din-Dzietham, Nembhard, Collins, & Davis, 2004), and substance abuse (Rospenda et al., 2009; Yoo, Gee, Lowthrop, & Robertson, 2010). Taken together, we expect perceived racial discrimination at work to be negatively related to employees' psychological and physical health.

The IMCD further predicts that when employees perceive racial discrimination at work, they are likely to assume a poor organizational diversity climate. A healthy diversity climate is one where the organization cares about diversity and strives to create an inclusive environment for all (Avery et al., 2007; Mor Barak et al., 1998, Triana et al., 2010). Employees may infer a lack of inclusion in their workplace when they perceive that some groups have been treated unfairly (Crosby, 1984). This is consistent with Roberson and Colquitt's (2005) shared and configural justice model which explains that people are influenced by others with whom they interact and/or by those in similar situations to their own because they can imagine themselves in each other's place. Perceived racial discrimination and perceived diversity climate should therefore be inversely related.

Based on relative deprivation theory, employees should exhibit fewer OCBs when they feel that they have been deprived of a standard of fair treatment (Crosby, 1984). Relatedly, the IMCD predicts that experiencing discrimination at work should be negatively related to employees' involvement at their jobs. Perceived racial discrimination at work will reduce the likelihood of such discretionary behavior that helps the organization (Triana & García, 2009). In summary, we hypothesize the following:

Hypothesis 1: Perceived racial discrimination at work will be negatively related to employees' job attitudes, psychological health, physical health, perceived diversity climate, and OCBs.

When employees feel they have been deprived of a standard of fair treatment, we expect they will exhibit various coping behaviors in response to the deprivation that may have implications for themselves, their employers, and broader society (Crosby, 1976). Based on the IMCD, employees will respond to perceived discrimination at work in a way that affects both their individual outcomes as well as their organization's effectiveness (Cox, 1994). Common behaviors in response to perceived discrimination include seeking advocacy through filing a complaint or lawsuit (Ensher et al., 2001; Groth et al., 2002; Knapp et al., 1998), initiating problem-solving (Nelson, 2001; Utsey, 1997), and seeking social support (Din-Dzietham et al., 2004; Utsey, 1997). We propose the following:

Hypothesis 2: Perceived racial discrimination at work will be positively related to employees' coping behavior.

Moderators of Theoretical and Practical Interest

Based on the IMCD (Cox, 1994), we examine whether the percentage of minorities (i.e., racial/ethnic and women) in the sample influences the magnitude of the relationship between

perceived racial discrimination at work and its outcomes. The IMCD predicts that employees' identity structures, including their race and sex, influence the way they experience and react to perceived discrimination at work. Specifically, it proposes that minority groups will have less favorable work experiences than members of the majority (Cox, 1994). Title VII of the Civil Rights Act also defined certain protected classes, or groups typically subjected to employment discrimination, and was initially enacted to protect them.[1] Protected racial/ethnic groups include African-Americans, Hispanics, Asian Americans, and Native Americans. Research has shown that African-Americans have the strongest racial identification, followed by Hispanics, then Asian Americans, and then Caucasians (Phinney, 1992). This finding also reflects the amount of discrimination experienced by each of these groups (Utsey, Chae, Brown, & Kelly, 2002). The charges filed seeking protection under Title VII of the Civil Rights Act in 2005 also reflect this trend—African-Americans filed 48%, Whites filed 25%, and the rest were initiated by other groups (Goldman et al., 2006). Title VII of the Civil Rights Act also forbids employment discrimination on the basis of sex, whereby women are the protected group.

Racial minorities and women are more attentive to diversity issues and care the most about workplace diversity (Mor Barak et al., 1998). As noted earlier, racial discrimination charges filed with the EEOC in 2013 were the most prevalent (35.3%), followed by sex discrimination charges (29.5%; EEOC, 2014b). This is telling since there are more women (irrespective of race) than racial minorities (irrespective of sex) in the U.S. workplace (Bureau of Labor Statistics, 2014). Because minority groups have the strongest racial identities and have experienced the most discrimination in the U.S. (Feagin & Sikes, 1994; Gonzalez, 2000), we

[1] The protected class stated in the law is "race" which technically covers members of all racial groups, regardless of minority status. This is why Caucasians sometimes file reverse discrimination lawsuits. Our point is simply that Title VII was born out of the Civil Rights Act and the Civil Rights Movement of the 1960s, where the focus was on protecting the employment rights of the minority groups.

expect that the percentage of minorities represented in the sample will influence the effect sizes reported. Minority groups also may be more susceptible to discrimination (Benokraitis & Feagin, 1995; Feagin & Sikes, 1994; Sidanius & Pratto, 1999) because of the history of discrimination against them (Boswell, 1986; Chou & Feagin, 2010; Feagin & Sikes, 1994; Gonzalez, 2000; Jahoda, 1975; Spicer, 1969), thereby, increasing their likelihood to both perceive discrimination (Kossek & Zonia, 1994) and respond more strongly to it. We propose:

> *Hypothesis 3: The relationship between perceived racial discrimination at work and its outcomes (job attitudes, physical health, and psychological health, OCBs, perceived diversity climate, and coping behavior) will be stronger the more minorities (racial/ethnic minorities and women) are represented in the sample.*

Based on relative deprivation theory, we also explain how a contextual moderator in society (i.e., a change to a major employment discrimination law) can influence employee reactions to perceived discrimination. Crosby states (1976, p. 86), "If deprivation comes from comparing ourselves to someone…who is better off than we are, and if all societies contain inequalities, why do we not always feel deprived?" Based on this notion, society's preoccupation with social justice and fairness may determine the severity of the deprivation experienced.

Two major amendments to the Civil Rights Act in 1991 (passed on November 21, 1991) represent a significant shift in societal norms and concern for equal and fair treatment among employees of different races. The first change was significantly improved enforceability. Prior to 1991, the EEOC had been referred to as a "toothless tiger" because it lacked the power to strongly enforce Title VII of the Civil Rights Act of 1964 (EEOC, 2014d). In particular, jury trials were not possible under the original Civil Rights Act of 1964; however, this changed when the Civil Rights Act of 1991 allowed the aggrieved to obtain jury trials and recover both

compensatory and punitive damages from the perpetrators of intentional discrimination (EEOC, 2014e). The second change was a new section to Title VII describing disparate impact. This section refers to employment practices that although seemingly neutral, may unintentionally result in the unfair treatment of some groups. While the concept of disparate impact had been around for years, two court cases (Price Waterhouse v. Hopkins, 1989, and Wards Cove Packing Co. v. Antonio, 1989) had made it difficult for plaintiffs to win discrimination law suits on the basis of disparate impact. The Civil Rights Act of 1991 restored the coverage of disparate impact in the law to pre-Wards Cove case standards and placed the burden of proof on the employer to demonstrate the business necessity for using employment practices that may be discriminatory toward members of protected classes. Prior to the Civil Rights Act of 1991, employers could avoid liability for discrimination because the burden of proof was on the plaintiff to demonstrate that there was no business need for the discriminatory practice (EEOC, 2014e).

In line with Crosby, we argue that such changes in employment law signal a societal shift in where the line is drawn between right and wrong. The five preconditions for deprivation can be summarized as being a function of perceiving that a discrepancy exists between actual outcomes versus desired outcomes, and between actual outcomes versus deserved outcomes (Crosby, 1984). Regardless of changes in contextual factors such as employment law, perceived racial discrimination at work should reflect a deviation from a desired outcome. However, we propose that post-1991, the perceived discrepancy between the outcome one receives and the outcome one deserves should be increased by the strengthened employment discrimination laws. Feelings of deprivation should be greater when employment laws have been expanded to state that employment discrimination is a greater wrong punishable by punitive and compensatory damages, and when the burden of proof to demonstrate business necessity has been shifted to the

employer. This is because the threshold for feeling deprived has been lowered. As a result, people may both perceive more discrimination after 1991 and respond more strongly to it.

Providing evidence of a heightened concern for fair treatment in the workplace after 1991, Goldman et al. (2006) observed that the Civil Rights Act of 1991 was followed by significantly increased interaction among scholars and practitioners in attempts to mitigate unintended employment discrimination and avoid costly lawsuits, as well as to develop preventative policies. As a result, the workforce saw an increase in diversity management practices, which potentially increased employees' awareness of the law. Furthermore, between 1992 and 2005, monetary benefits (including punitive and compensatory damages) awarded under Title VII increased by 589% (Goldman et al., 2006), which indicates heightened employee concern as more charges were being filed. Thus, we propose the following hypothesis:

> *Hypothesis 4: The relationship between perceived racial discrimination at work and its employee outcomes (job attitudes, physical health, and psychological health, OCBs, perceived diversity climate, and coping behavior) will be stronger after 1991 than before 1991.*

Method

Sample

We searched for studies investigating the perceived racial discrimination—employee outcome relationship by conducting a computerized bibliographic search in PsycINFO, Business Source Complete, ABI/Inform, Sociological Abstracts, and Proquest Dissertations and Theses using the key terms discriminat*, stereotyp*, prejudic*, bias*, and racism.[2] We searched for any of these terms in titles, abstracts, and keywords in combination with the words employ* or

[2] The asterisk (*) represents a wildcard in database searches, meaning it will find any combination of letters from that point on. We did this to find all word combinations (e.g., discrimination, discriminated, discriminating).

work* anywhere in the article text to capture employee samples. To capture all potential studies, we did not restrict the publication date. We identified unpublished studies by searching conference programs and proceedings for the 2011-2014 annual meetings of the Academy of Management and the 2011-2014 annual meetings of the Society for Industrial/Organizational Psychology. We also contacted the authors of all studies included in our meta-analysis to request works in progress and unpublished papers. Finally, we examined the references of papers in our meta-analysis for any additional articles. We screened the title, abstract, and method section of all articles identified.

Studies had to meet several inclusion criteria. First, studies had to contain an explicit measure of perceived racial discrimination at work. We excluded studies attempting to proxy for perceived discrimination through racial differences, membership in a minority racial group, wage gaps or other indirect measures. Second, this measure had to exclusively reference an employee's perception that he/she was discriminated against on the basis of race in the workplace (i.e., overt discrimination) and not whether the employee perceived racial discrimination directed at others in the workplace. Studies based on self-reported subtle or ambiguous forms of discrimination with no reference to race or minority group membership (Jones et al., in press) were excluded. Third, perceived racial discrimination and employee outcomes were required to be measured and reported at the individual-level, not at the group- or organization-level. Last, studies had to report effect size estimates in the form of a bivariate correlation coefficient or any other statistic convertible to one. Studies reporting unconvertible effect sizes or no effect size information were included only if the original authors provided us with the required information upon request. The final sample included 79 effect sizes from studies published between 1980 and 2013. The list of articles coded is presented in Appendix A.

Coding

We coded estimates of effect size, sample size, and measurement error (e.g., internal consistency–alpha) in both independent and dependent variables. We categorized dependent variables into one of the following outcomes: job attitudes (K = 25), physical health (K = 17), psychological health (K = 22), OCBs (K = 4), diversity climate (K = 5), and coping behavior (K = 6). If a study provided multiple correlation coefficients relating perceived workplace racial discrimination to individual outcomes falling in the same category (e.g., a study may have presented measures of job satisfaction and commitment, which are both job attitudes), we calculated a single linear composite correlation (Hunter & Schmidt, 2004). Further, if the same dataset or sample of respondents was used in multiple studies to examine the relationship between perceived racial discrimination and outcomes of the same category, we treated them as a single study by aggregating the effect sizes. When effect sizes were aggregated, their corresponding reliability estimates were also averaged. Coding only one relationship per article within each outcome category ensured independence in effect size estimates.

We coded effect sizes in a consistent direction within each outcome category. For example, within job attitudes, turnover intent effect sizes were reversed in sign/direction so they were consistent with those for job satisfaction or commitment. Coping behavior was coded positively since coping mechanisms in response to stress are generally seen as positive (Lazarus & Folkman, 1984). Based on each study's publication date, we coded whether perceived racial discrimination had been measured in 1991 and earlier, or after 1991, to test the moderating effect of the passage of the Civil Rights Act of 1991. We also coded the percentage of women and racial minorities (African-American, Hispanic, Native American, or Asian American) in the sample to test our hypothesis predicting stronger effect sizes in samples with more minorities.

Two of the authors coded all the studies. Average inter-rater agreement was high (Cohen's Kappa = .98), and disagreements were subsequently resolved through discussion.

Analyses

We used the Hunter and Schmidt (2004) meta-analytic technique to generate a sample-size weighted overall average effect size ($\bar{r}$) for each outcome category across studies. Meta-analysis is a statistical technique that aggregates uncorrected/raw effect size estimates from separate studies and estimates a true population effect size, or rho (ρ), between the two variables in question (Arthur, Bennett, & Huffcut, 2001) by correcting for statistical artifacts. Specifically, we corrected for the influence of sampling and measurement error on effect size estimates. Since internal consistency (alpha) estimates for measures of both independent and dependent variables were not reported across all studies, we used the artifact distribution method to correct for attenuating effects of unreliability (Hunter & Schmidt, 2004). Average internal consistency was .85 across measures of perceived racial discrimination and ranged between .58 and .97 for measures of employee outcomes. We also calculated the 95% confidence intervals around the mean uncorrected correlation ($\bar{r}$) to gain a sense of the precision of our meta-analytic estimates (Whitener, 1990); these give the range of values that the mean effect size is likely to take if other samples were drawn from the same population (Arthur et al., 2001).

Within each outcome category, we examined whether the observed variance in effect sizes across studies was solely due to sampling error (i.e., average true score correlation, ρ, represents a single population parameter) or due to systematic differences between studies in addition to within-study sampling variability (i.e., average true score correlation, ρ, represents mean of parameters from several subpopulations). More specifically, we used a battery of tests to determine the likelihood of moderation within each outcome category, including the "75% rule"

(i.e., moderators present if artifacts fail to explain 75% or more of the observed variance) (Hunter & Schmidt, 2004), 80% credibility intervals constructed around the estimated true score correlation (i.e., moderators present if interval includes zero or is relatively wide), and chi-square tests of homogeneity (i.e., moderators present if statistically significant).

To test our hypothesis that the passage of the Civil Rights Act of 1991 moderated the perceived racial discrimination—employee outcome relationship, we conducted subgroup analyses (Hunter & Schmidt, 1990, 2004) comparing sample-size weighted mean effect sizes between studies published in 1991 and earlier, and those published after 1991. Only articles with U.S. samples were included because this law applies only in the U.S. To test our hypothesis involving continuous moderators (i.e., percentage of women and minorities), we used weighted least squares regression (Steel & Kammeyer-Muller, 2002) because it avoids the artificial categorization of continuous moderators to conduct subgroup analyses. The weighting factor in this regression was the inverse square root of the sampling error for each correlation as suggested by Steel and Kammeyer-Muller (2002). The regression examined whether the moderator explained variance in the uncorrected correlations between perceived racial discrimination and the outcomes.

Results

Table 2 displays the aggregate effect size estimates for each outcome category. We found support for Hypotheses 1 and 2. Perceived racial discrimination at work was negatively related to job attitudes ($\bar{r}$ = -.32, ρ = -.38), psychological health ($\bar{r}$ = -.12, ρ = -.14), physical health ($\bar{r}$ = -.06, ρ = -.07), perceived diversity climate ($\bar{r}$ = -.27, ρ = -.32), OCBs ($\bar{r}$ = -.12, ρ = -.14), and positively related to coping behavior ($\bar{r}$ = .17, ρ = .20). Based on Cohen's (1988) conventions, the uncorrected sample-size weighted correlations across all outcome categories (except for

physical health) are small to medium ($.10 < r < .30$). Within each outcome category, less than 75% of the observed variance in effect sizes was explained by artifacts, the credibility intervals were relatively wide, and the chi-square test of homogeneity was significant for all outcome categories (except diversity climate). These findings indicate that the effect sizes were likely from separate sub-populations, which suggests the presence of moderators.

Hypothesis 3 proposed that the magnitude of the perceived racial discrimination—employee outcome relationship would be stronger the higher the percentage of women and racial minorities in the sample. Results of the weighted least squares regressions testing the influence of the percentage of minorities showed partial support for Hypothesis 3. Specifically, the higher the sample's percentage of racial minorities, the stronger the negative relationship between perceived racial discrimination and job attitudes ($R^2 = .15$, $F(1, 21) = 3.59$, $p < .10$ two-tailed or $p < .05$ one-tailed since the hypothesis was directional; Hinkle, Wiersma, & Jurs, 2003). We also found that when more women were in the sample the negative relationship between perceived racial discrimination and psychological health was stronger ($R^2 = .21$, $F(1, 19) = 5.01$, $p < .05$ two-tailed or $p < .01$ one-tailed).

Our subgroup analyses testing for post-1991 differences produced partial support for Hypothesis 4. As displayed in Table 3, the negative perceived racial discrimination—job attitudes relationship was stronger for studies published after 1991 than for studies published earlier. The true score correlations were significantly different ($z = 2.84$, $p < .05$) between studies published in 1991 or earlier ($\rho = -.12$) and those published after 1991 ($\rho = -.36$). We were unable

to test for categorical moderating effects for the other dependent variables because no (or fewer than 2) articles with these variables were published in 1991 or earlier.

Robustness Checks

To check for publication bias, we used the PUB_BIAS macro for SAS (Rendina-Gobioff & Kromrey, 2006) that runs several different tests including the Begg Rank Correlation, Egger Regression, Funnel Plot Regression, and Trim and Fill procedures (for a detailed explanation of these methods see Begg & Mazumdar, 1994; Duval & Tweedie, 2000a, 2000b; Egger, Smith, Schneider, & Minder, 1997; Macaskill, Walter, & Irwig, 2001).[3] This macro has been used in other meta-analyses (e.g., Sayo, Jennings, & Van Horn, 2012). Based on these tests, we found no evidence of publication bias in our study. The results for the perceived racial discrimination—job attitudes relationship are as follows (Egger value t = -.24, p > .05; Begg Rank Correlation based on variance t = -.42, p > .05; Begg Rank Correlation based on sample size t = -.14, p > .05; Funnel Plot Regression t = .16, p > .05; Trim and Fill procedure shows no evidence of publication bias in the right tail, left tail, and both tail tests). Results for all other dependent variables also showed no evidence of publication bias.

Results of fail-safe N tests (Subramony, 2009) also supported the findings of the publication bias tests above. Publication bias was unlikely, as the number of studies reporting an effect size of zero required to reduce the sample-size weighted mean observed correlation to a third (i.e., reduce by 66%) was 1-2 times the current number of studies included in each category (job attitudes = 46 studies; physical health = 34; psychological health = 40; OCBs = 8; diversity climate = 10; coping behavior = 11). Given that we searched extensively for articles across

[3] Based on personal communication with Jeff Kromrey, we adjusted the macro to analyze correlations instead of the *d* statistic because we coded correlations in our study.

multiple databases and unpublished works (conference proceedings, dissertations, and working papers) and because we did not restrict our search by date, the possibility of finding that many additional studies with null results is likely remote.

Supplemental Analyses

We ran one additional subgroup analysis to examine whether some measures of perceived racial discrimination produced stronger effects on the outcome variables than others. We had sufficient observations of the Ethnic Harassment Experiences Scale (EHE; Schneider, Hitlan, & Radhakrishnan, 2000), the Workplace Prejudice and Discrimination Inventory (WPDI; James, Lovato, & Cropanzano, 1994), and the Sanchez and Brock (1996) Perceived Discrimination Scale to compare effect sizes on job attitudes. We also had enough data to compare effect sizes for the EHE scale and the WPDI on psychological and physical health. We did not have sufficient clusters of the same scales repeating for the other dependent variables to run analyses. We present the results in Appendix B. The EHE scale yielded effect sizes on job attitudes (ρ = -.27) that were significantly smaller (i.e., less negative) than those of the WPDI (ρ = -.51; z = 3.12, $p < .05$) and the Perceived Discrimination Scale (ρ = -.60; z = 4.68, $p < .05$). The EHE scale produced stronger (i.e., more negative) effect sizes for physical health (ρ = -.22) than those of the WPDI (ρ = -.08), and the differences were statistically significant (z = -2.64, $p < .05$).

The weaker perceived workplace racial discrimination–job attitude relationship from using the EHE scale may be explained by several reasons. First, the EHE scale includes items not necessarily targeted at oneself (e.g., "Someone at work tells jokes about your ethnic group") while the WPDI and the Perceived Discrimination scales are primarily composed of items targeted toward oneself (e.g., "At work I am treated poorly because of my racial/ethnic group"). Second, the EHE scale asks participants to report the frequency of discrimination experiences during the prior 24 months while the WPDI and the Perceived Discrimination scales ask participants to describe current or more recent experiences.

To the extent that the WPDI and Perceived Discrimination scales capture experiences of discrimination that are directed more toward oneself (rather than others), and those that are more salient and recallable, studies using these measures may demonstrate a stronger influence of perceived workplace racial discrimination on mental and perceptual employee outcomes than studies using the EHE scale. This is consistent with Pascoe and Richman's (2009) finding that recent (more salient) discrimination experiences had the most deleterious effects on mental health. However, studies using the EHE scale may demonstrate a stronger relationship with physical health because it captures experiences of discrimination accumulated over the course of 24 months, representing a persistent pattern of deprivation that may be associated with

damage to physical health once a certain breaking/tipping point is reached. Similarly, Pascoe and Richman (2009, p. 541) found that "chronically experienced discrimination" had more deleterious effects on physical health in comparison with recent discrimination experiences.

Discussion

Consistent with our hypotheses, results show that perceived racial discrimination at work is negatively related to job attitudes, physical health, psychological health, OCBs, and diversity climate, and positively related to coping behavior. We also found that the negative relationship between perceived workplace racial discrimination and job attitudes was stronger following the passage of the Civil Rights Act of 1991, which signaled a heightened societal concern for fair treatment. We were unable to test for pre- and post-1991 moderating effects for the other dependent variables, as all of the articles in those categories were published after 1991. Additionally, the negative relationship between perceived racial discrimination and the job attitude outcome category was statistically significant and stronger when more racial minorities were in the sample. The magnitude of the relationship between perceived racial discrimination and both psychological and physical health outcomes did not differ significantly by the percentage of racial minorities in the sample. The percentage of racial minorities in the sample also did not significantly moderate the correlations between perceived racial discrimination and OCB, coping behavior, or diversity climate outcomes. This may be partly due to the insufficient observations available in these outcome categories.

The perceived racial discrimination—psychological health relationship was also stronger when more women were in the sample. We found no moderating effects of the percentage of women on job attitudes or physical health. Mathieu and Zajac's (1990) finding that women are

only slightly more committed to their jobs than men may explain our null results for job attitudes. We found no evidence that perceived racial discrimination at work has more of a physical toll on women than men. This may be because women live longer than men (Austad, 2006) and may tend to have healthier habits. For OCB, coping behavior, and diversity climate outcomes, there were too few observations to adequately test our hypothesis.

The results of our supplemental analysis also indicate important differences in the effect of perceived workplace racial discrimination on outcomes based on the measure of discrimination used across studies. We found stronger effects of perceived discrimination on job attitudes when the scale included items capturing more recent, personal experiences of discrimination (e.g., the WPDI and Perceived Discrimination scales). However, we found more deleterious effects of perceived racial discrimination on physical health outcomes when the scale captured discrimination experienced over a longer course of time (e.g., EHE scale). Our findings suggest that to best understand the effect of perceived discrimination on outcomes, researchers should thoroughly consider the alignment between the measure of perceived discrimination and the outcome of interest.

Our meta-analysis suggests that perceived workplace racial discrimination predicts attitudes and psychological health more strongly than physical health, perhaps because the former employee outcomes are more proximal to perceptions of discrimination. Physical health outcomes may be brought on by sufficient escalation of mental stress over time to inflict a physical toll. In general, our results are consistent with the meta-analysis conducted by Pascoe and Richman (2009) on the health-related outcomes of societal discrimination which included any form of perceived discrimination (not just racial) experienced in any context (not just employment). Our mean uncorrected correlation ($\bar{r}$ = -.12 based on N = 84,003 and K = 22)

between perceived racial discrimination and psychological health is similar to Pascoe and Richman's effect estimate ($\bar{r}$ = -.16 based on approximate $\bar{N}$ = 55,650 and K = 105) for the relationship between perceived discrimination and mental health.[4] Our mean uncorrected correlation for physical health ($\bar{r}$ = -.06 based on N = 96,731 and K = 17) was different from Pascoe and Richman's (2009; $\bar{r}$ = -.13 based on approximate $\bar{N}$ = 19,080 and K = 36).[5]

Although slightly smaller than those reported by Pascoe and Richman, our effect size estimates are small to medium (Cohen, 1992). One explanation for these differences may be our focus on discrimination in an employment context while Pascoe and Richman examined societal discrimination. When the source of discrimination is situated in the workplace, with its impact potentially limited to regular work hours, employees may have an opportunity to seek relief from this work-related burden during non-working hours and in their personal lives. When the discrimination comes from society, the individual may experience it more pervasively, thus having more deleterious effects on both psychological and physical health. We note that while our effect sizes for the perceived racial discrimination—physical health relationship were smaller ($\bar{r}$ = -.06; ρ = -.07) than those for other outcomes, smaller effect sizes can still be practically significant particularly when the outcome pertains to human health. For example, Vacha-Haase and Thompson (2004, p. 478) state that the "effect size for smoking versus not smoking on longevity is around 2%. We deem the result quite noteworthy, first because the outcome is so precious and, second, because related study after study has replicated this approximate effect."

Our findings also share similarities and differences with the Jones et al. (in press) meta-

[4] Pascoe and Richman (2009) do not provide sample size (N) information for each outcome, and instead only provide the number of studies (K) and an average sample size across all outcomes. Therefore, the sum of sample sizes across studies examining psychological health outcomes has been approximated as the multiplication of the number of studies (K = 105) and the average sample size ($\bar{N}$ = 530).

[5] The sum of sample sizes across studies examining physical health outcomes has been approximated as the multiplication of the number of studies (K = 36) and the average sample size ($\bar{N}$ = 530).

analysis. We found stronger effects for the relationship between perceived (racial) discrimination and job attitudes ($\bar{r}$ = -.32 based on N = 14,452, k = 25) than Jones et al.'s estimates for both "individual work correlates" ($\bar{r}$ = .26 based on N = 13,824, k = 14) and "organizationally relevant correlates" ($\bar{r}$ = .19 based on N = 13,745, k = 14)[6]. Our meta-analysis focused exclusively on overt discrimination whereas Jones et al.'s meta-analysis focused on both overt and subtle discrimination. Overt forms of discrimination may have stronger negative effects on job attitudes because they are easily identified, unlike subtle discrimination. Our job attitudes category, defined here as feelings toward one's job (e.g., job satisfaction, commitment, turnover intentions, and perceived fairness), also may not be directly comparable to Jones et al.'s categories of "individual work correlates" (e.g., satisfaction, attachment, stress) and "organizationally relevant correlates" (e.g., employee turnover intentions, employee performance, organizational performance). We also found weaker effect sizes for perceived racial discrimination's relationship with physical health ($\bar{r}$ = -.06 based on N = 96,731, k = 17) and psychological health ($\bar{r}$ = -.12 based on N = 84,003, k = 22) than those reported by Jones et al. ($\bar{r}_{Physical\ Health}$ = .13 based on N = 14,637, k = 11; $\bar{r}_{Psychological\ Health}$ = .25 based on N = 17,498, k = 32).

The preceding comparison of our meta-analytic findings with prior meta-analyses illustrates the value in conducting both broad meta-analyses which include multiple targets (e.g., race, sex), settings (e.g., work, non-work), and forms (e.g., subtle, overt) of discrimination as well as deep meta-analyses (such as the current study) focused on a single target, setting, and form of discrimination. It creates opportunities to replicate and corroborate existing findings as well as identify theoretical and methodological contingencies.

[6] Jones et al.'s (in press) effect sizes are positive because they were coded such that positive correlations mean that higher levels of discrimination are positively linked to adverse outcomes.

Theoretical Implications

This study expands the IMCD (Cox, 1994) to consider societal factors in addition to individual, group, and organization-level factors. Our results suggest that the magnitude of employees' attitudinal reactions to perceived racial discrimination at work could be influenced by societal changes in major employment laws. Therefore, the IMCD should be modified to consider employment law changes as a moderator of the employee-level outcomes of prejudice in organizations. We also find some support for the IMCD's prediction that minority groups will have less favorable work experiences than majority groups.

We additionally extend relative deprivation theory (Crosby, 1976) to account for major changes in employment law that reflect a change in societal dictates on equity, which can influence employees' expectations of how they ought to be treated at work. Our findings imply that these expectations can lower employees' threshold for feeling deprived when treated unfairly in the workplace due to their race, resulting in erosion of job attitudes. More broadly, by drawing on relative deprivation theory and considering legal changes that can influence employees' expectations of fair treatment, we stress the importance of context in discrimination research.

Practical Implications

Our results showing that perceived racial discrimination is negatively related to job attitudes, as well as physical and psychological health, imply that discrimination can be costly for employers (Hillmer, Hillmer, & McRoberts, 2004; Hinkin & Tracey, 2000). Poor job attitudes or health may have bottom line implications for employers through increased psychological or physical withdrawal (Lehman & Simpson, 1992) and reduced effort (Koslowsky, 2009). For example, the costs to the organization from voluntary turnover (Griffeth,

Hom, & Gaertner, 2000; Mitra, Jenkins, & Gupta, 1992) and the resulting losses in productivity (Eder & Eisenberger, 2008) are estimated to be as high as $200 billion per year (Murphy, 1993). Also, physical symptoms (e.g., headache, upset stomach; Spector & Jex, 1998) have been associated with problems (Danna & Griffin, 1999) such as lower productivity and increased absenteeism (Boyd, 1997).

Our results regarding the moderating impact of the passage of the Civil Rights Act of 1991 imply that changes to certain contextual factors in society may change employees' judgments about what constitutes fair treatment at work. Employers should therefore be aware of major changes in the environment, including changes to employment laws, societal norms and dictates, and cultural practices and values.

Our finding that the percentage of minority employees in the sample strengthens the negative effects of perceived racial discrimination on job attitudes may explain (in part) why minorities file the most lawsuits (Goldman et al., 2006). Minorities tend to care the most about workplace diversity (Mor Barak et al., 1998), experience the highest levels of discrimination (Utsey et al., 2002), and have the strongest racial identities (Phinney, 1992). Also, the history of discrimination against minority groups in the U.S. (Boswell, 1986; Chou & Feagin, 2010; Feagin & Sikes, 1994; Gonzalez, 2000; Jahoda, 1975; Spicer, 1969) could make them more likely to perceive discrimination (Kossek & Zonia, 1994). According to our results, minorities also respond somewhat more strongly to perceived discrimination. This implies that minorities pay close attention to diversity issues and discrimination in the workplace. It is not surprising that they would feel the most deterioration of job attitudes as a result of perceived racial discrimination (Cox, 1994). Given the adverse consequences of poor job attitudes for organizational outcomes, it is important for employers to maintain a zero tolerance

discrimination policy and provide diversity training to help prevent discrimination and its associated effect on employees' job attitudes.

Limitations and Future Research

One limitation of our study is that we did not have sufficient studies to conduct moderator analyses for some outcomes. For example, we could not test the moderating effect of changes to the Civil Rights Act in 1991 on the relationship between perceived workplace racial discrimination and physical health, psychological health, OCBs, perceived diversity climate, or coping behavior because all studies in those categories were published after 1991. Besides the Civil Rights Act of 1991, additional laws passed in the 1990s including the Americans with Disabilities Act of 1990 and the Older Workers Benefit Protection Act of 1990, were followed by the largest increase in discrimination charges filed in the EEOC's history (EEOC, 2014f). This may have brought more research attention to the area after 1991, unlike the period prior in which research on employment discrimination was scarce.

Ideally, future research may focus on other theoretical moderators of interest for which we did not have sufficient data. For instance, employees' overall levels of self-esteem or core self-evaluations, a measure made up of self-esteem, self-efficacy, emotional stability, and locus of control (Judge, Erez, Bono, & Thoresen, 2003), may moderate the effect sizes we present. We did not find sufficient studies that measured these variables to examine these relationships.

Other contextual factors internal and external to the workplace should be explored in future research. One such internal factor is perceptions of general racial discrimination toward others in the workplace. Job attitudes, and possibly other correlates, may be affected to a greater extent when one perceives discrimination occurring both to oneself and to others in the workplace. Similar to societal norms examined in this study, other contextual factors external to

the workplace may include differences in country and regional labor laws (e.g., the coverage and enforcement of employment discrimination legislation), spatial (i.e., geographical) and temporal differences in cultural practices and values, and differences in labor standards and norms. Such factors may also moderate the severity of employee outcomes from perceived workplace racial discrimination across contexts.

Another limitation is that most studies in our sample used cross-sectional, not longitudinal designs. This limits our ability to make causal inferences. Based on our results and prior research, it is clear that perceived discrimination is related to many employee outcomes. However, some of the relationships reported here may have a reciprocal pattern, where perceptions of discrimination and the presumed outcomes are influencing each other. For example, a poor diversity climate likely leads to heightened perceptions of discrimination, but perceived discrimination may also lead one to conclude that the diversity climate is poor. Future research may explore this further once more longitudinal studies have been published.

A final limitation is that almost all of the studies measuring health outcomes (16 out of the 17 studies) measured self-reported health. This may explain why our effect size between perceived racial discrimination and physical health was smaller than that reported by Pascoe and Richman (2009). Their meta-analysis included many studies with objectively coded outcomes (i.e., studies from the medical field that measured blood pressure, heart rate variability, hypertension, diabetes, as well as pain), while all ours took place in a work context and mostly measured self-reported general health, physical symptoms, and substance abuse. The one independently rated effect size we had (James et al., 1994, which measured blood pressure) was among the larger effects coded. This suggests that our effect size estimate for the perceived workplace racial discrimination—physical health relationship may be conservative. Reports of

health may be downplayed through socially desirable reporting by participants who feel uncomfortable reporting physical ailments and substance abuse on a survey. Future research may examine this relationship when more studies with objective measures of health outcomes of discrimination at work have been published.

Conclusion

Research shows that perceived workplace racial discrimination is related to many negative outcomes for employees and organizations (Cox, 1994; Dipboye & Colella, 2005). Our meta-analysis expands this research by contributing evidence of the impact of perceived workplace racial discrimination on previously unconsidered employee outcomes which have implications for organizational performance. This study also extends the IMCD and relative deprivation theory by suggesting that societal factors such as major changes in employment law can influence employees' threshold for feeling deprived of fair treatment at work. We extend discrimination research by highlighting that contextual factors can determine the magnitude of employee responses to perceived discrimination at work.

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Table 1

Comparison of Current Study with Previous Meta-analyses on Perceived Racial Discrimination

	Current Study	**Jones et al. (in press)**	**Lee & Ahn (2011)**	**Lee & Ahn (2012)**	**Pascoe & Richman (2009)**
Discrimination: Target & Domain	Race, Work	Race and Gender, Work and Non-work, (Overt and Subtle)	Race (Asian only), Work and Non-work	Race (Latina/o only), Work and Non-work	Race and Gender, Work, and Non-work
Outcomes	Job attitudes (k = 25) Physical health (k = 17) Psychological health (k = 22) OCB (k = 4) Diversity Climate (k = 5) Coping behavior (k = 6)	Individual work correlates (k = 14) Physical health (k = 11) Psychological health (k = 32) Organizationally relevant correlates (k = 14)	Psychological & Mental health (k = 24)	Job attitudes (k = 15) Psychological health (k = 36) Coping behavior (k = 8)	Physical health (k = 36) Psychological & Mental health (k = 105)
Moderators	Pre-post 1991 Percent of minorities in sample Measure of discrimination	Minority characteristic Publication date Study setting	-	Geographical region of sample Ethnicity Age of sample Publication type	Social support Coping behavior Group Identification
Scope of Sample	1980 - 2013	1996 - 2010	1992 - 2009	1985 - 2010	1987 - 2007

Table 2

Meta-analysis of Perceived Workplace Racial Discrimination on Individual Outcomes[7]

Outcome	*N*	*k*	$\bar{r}$	ρ	$\sigma_r{}^2$	$\sigma_e{}^2$	% variance due to artifacts	χ^2 *value*	80% credibility interval	95% confidence interval
Job Attitudes	14,452	25	-.32	-.38	.013	.001	14.31%	235.50***	-.54 : -.21	-.33 : -.30
Physical Health	96,731	17	-.06	-.07	.003	.000	6.75%	286.12***	-.15 : .01	-.08 : -.03
Psychological Health	84,003	22	-.12	-.14	.005	.000	7.31%	415.85***	-.24 : -.04	-.12 : -.11
Organizational Citizenship Behaviors	1,528	4	-.12	-.14	.007	.003	37.17%	10.86*	-.24 : -.04	-.19 : -.03
Diversity Climate	1,305	5	-.27	-.32	.006	.003	56.30%	9.08	-.40 : -.24	-.33 : -.20
Coping behavior	2,894	6	.17	.20	.012	.002	18.31%	35.24***	.05 : .35	.08 : .25

[7] *N=Total sample size; K=Total no. of independent samples;* $\bar{r}$ *= sample size weighted mean observed correlation;* ρ *= mean true score correlation;* $\sigma_r{}^2$ *= sample size weighted observed variance of correlations;* $\sigma_e{}^2$ *= variance attributable to sampling error variance;* $\chi^2{}_{K-1} = \left(\frac{N}{(1-\bar{r}^2)^2}\right)\sigma_r{}^2$ *tests homogeneity of correlations (i.e. whether the residual variance is significantly large);*

80% credibility intervals have been calculated using ρ *and the standard deviation of* ρ*; 95% confidence intervals have been calculated using* $\bar{r}$ *and standard error based on sampling error variance* $\sigma_e{}^2$ *when population effect size variance is zero (homogeneous) or using* $\bar{r}$ *and standard error based on the residual variance of correlations after removing sampling error variance (heterogeneous) (Whitener, 1990).*

p<.05; **p<.01*p<.001*

Table 3

Perceived Workplace Racial Discrimination-Job Attitudes Relationship with Civil Rights Act-Title VII 1991 Amendment as a Moderator [8]

	N	*k*	$\bar{r}$	ρ	$\sigma_r{}^2$	$\sigma_e{}^2$	% variance due to artifacts	χ^2 *value*	80% credibility interval	95% confidence interval
1991 and earlier	293	2	-.10	-.12	.015	.007	44.03%	4.62*	-.26 : .02	-.27 : .07
Post 1991	11,636	20	-.31	-.36	.011	.001	14.24%	162.94***	-.51 : -.21	-.32 : -.29

[8] *N=Total sample size; K=Total no. of independent samples;* $\bar{r}$ *= sample size weighted mean observed correlation;* ρ *= mean true score correlation;* $\sigma_r{}^2$ *= sample size weighted observed variance of correlations;* $\sigma_e{}^2$ *= variance attributable to sampling error variance;* $\chi^2{}_{K-1} = \left(\frac{N}{(1-\bar{r}^2)^2}\right)\sigma_r{}^2$ *tests homogeneity of correlations (i.e. whether the residual variance is significantly large);* *80% credibility intervals have been calculated using* ρ *and the standard deviation of* ρ*; 95% confidence intervals have been calculated using* $\bar{r}$ *and standard error based on sampling error variance* $\sigma_e{}^2$ *when population effect size variance is zero (homogeneous) or using* $\bar{r}$ *and standard error based on the residual variance of correlations after removing sampling error variance (heterogeneous) (Whitener, 1990).* **p<.05; **p<.01***p<.001*

Appendix A

Sample of Studies and Study-level Information Coded

	Author(s)	Year	Journal	$\bar{r}$	*N*	r_{xx}	r_{yy}
Job Attitudes							
1.	Hopkins	1980	PUBLIC ADMIN REV	-.35	59	.	.
2.	Jeanquart	1991	DISSERTATION	-.04	234	.97	.92
3.	Burke	1991	PSYCHOL REP	-.10	81	.76	.74
4.	Sanchez & Brock	1996	ACAD MANAGE J	-.29	139	.87	.83
5.	Hughes & Dodge	1997	AM J COMMUN PSYCHOL	-.32	79	.91	.
6.	Valentine, Silver, & Twigg	1999	PSYCHOL REP	-.21	3,054	.	.70
7.	Schneider, Hitlan, & Radhakrishnan	2000	J APPL PSYCHOL	.02	110	.77	.64
8.	Ensher, Grant-Vallone, & Donaldson	2001	HUM RES DEV QUAR	-.46	366	.81	.81
9.	Nelson	2001	DISSERTATION	-.28	719	.84	.84
10.	Foley, Kidder, & Powell	2002	J MANAGE	-.67	204	.90	.87
11.	Wated & Sanchez	2006	INT J STRESS MANAGE	-.21	114	.90	.87
12.	Jasinskaja-Lahti, Liebkind, & Perhoniemi	2007	INT J INTERCULT REL	-.45	1,783	.58	.71
13.	DelCampo & Blancero	2008	CROSS CULT MANAGE	-.28	164	.	.
14.	Buchanan & Fitzgerald	2008	J OCCUP HEALTH PSYCH	-.33	91	.95	.86
15.	Jones, Ni, & Wilson	2009	J MANAGE ISSUES	-.26	1,252	.	.87
16.	Triana & Garcia	2009	J ORGAN BEHAV	-.50	181	.88	.86
17.	Raver & Nishii	2010	J APPL PSYCHOL	-.26	226	.85	.82
18.	Raver & Nishii	2010	J APPL PSYCHOL	-.16	735	.92	.84
19.	Triana, Garcia, & Colella	2010	PERS PSYCHOL	-.37	103	.85	.89
20.	Triana, Garcia, & Colella	2010	PERS PSYCHOL	-.33	171	.89	.81
21.	Triana, Garcia, & Colella	2010	PERS PSYCHOL	-.51	131	.90	.88
22.	Magee & Umamaheswar	2011	RACE SOC PROBL	-.26	659	.	.
23.	Bergman, Palmieri, Drasgow, & Ormerod	2012	J OCCUP HEALTH PSYCH	-.38	1,937	.90	.80
24.	Bergman, Palmieri, Drasgow, & Ormerod	2012	J OCCUP HEALTH PSYCH	-.38	2,000	.88	.81
25.	Madera, King, & Hebl	2012	CULT DIVERS ETHN MIN	-.44	211	.96	.88
Diversity Climate							
26.	Nelson	2001	DISSERTATION	-.32	719	.84	.84
27.	Triana & Garcia	2009	J ORGAN BEHAV	-.21	181	.88	.84

	Author(s)	Year	Journal	$\bar{r}$	*N*	r_{xx}	r_{yy}
28.	Triana, Garcia, & Colella	2010	PERS PSYCHOL	-.14	103	.85	.75
29.	Triana, Garcia, & Colella	2010	PERS PSYCHOL	-.13	171	.89	.78
30.	Triana, Garcia, & Colella	2010	PERS PSYCHOL	-.32	131	.90	.76
Organizational Citizenship Behavior							
31.	Ensher, Grant-Vallone, & Donaldson	2001	HUM RES DEV QUAR	-.09	366	.81	.77
32.	Nelson	2001	DISSERTATION	-.05	719	.84	.79
33.	Fox & Stallworth	2005	J VOCAT BEHAV	-.27	262	.84	.82
34.	Triana & Garcia	2009	J ORGAN BEHAV	-.19	181	.88	.90
Physical Health							
35.	James, Lovato, & Khoo	1994	ACAD MANAGE J	-.17	88	.90	.
36.	de Jesus	2001	DISSERTATION	-.10	225	.90	.
37.	Nelson	2001	DISSERTATION	-.20	719	.84	.75
38.	Buchanan	2002	DISSERTATION	-.10	91	.95	.82
39.	Jasinskaja-Lahti, Liebkind, & Perhoniemi	2006	J COMMUNITY APPL SOC	.02	3,595	.64	.
40.	Jasinskaja-Lahti, Liebkind, & Perhoniemi	2007	INT J INTERCULT REL	-.12	1,783	.58	.
41.	de Castro, Gee, & Takeuchi	2008	AM J PUBLIC HEALTH	-.13	1,652	.	.
42.	Asakura, Gee, Nakayama, & Niwa	2008	AM J PUBLIC HEALTH	-.01	313	.87	.79
43.	Bécares, Stafford, & Nazroo	2009	EUR J PUBLIC HEALTH	.04	12,706	.	.
44.	Burgess, Grill, Noorbaloochi, Griffin, Ricards, van Ryn, & Partin	2009	PAIN MED	-.16	393	.	.89
45.	Rospenda, Richman, & Shannon	2009	J INTERPERS VIOLENCE	-.04	2,151	.	.
46.	Shannon, Rospenda, Richman, & Minich	2009	J OCCUP ENVIRON MED	-.18	1,382	.	.
47.	Fujishiro	2009	SOC SCI MED	-.11	21,837	.	.
48.	Raver & Nishii	2010	J APPL PSYCHOL	-.17	735	.92	.85
49.	Yoo, Gee, & Lowthrop	2010	J MIGRA MINOR HEALTH	-.05	271	.92	.
50.	Purnell, Peppone, Alkaraz, McQueen, Guido, Carroll, Shacham, & Morrow	2012	AM J PUBLIC HEALTH	-.05	85,130	.	.
51.	Foynes, Shipherd, & Harrington	2013	CULT DIVERS ETHN MIN	-.06	1,516	.	.
Psychological Health							
52.	James, Lovato, & Khoo	1994	ACAD MANAGE J	-.16	88	.90	.66
53.	Sanchez & Brock	1996	ACAD MANAGE J	-.28	139	.87	.83
54.	Utsey	1997	DISSERTATION	.00	214	.	.83
55.	Collado-Proctor	1998	DISSERTATION	-.19	108	.81	.92

	Author(s)	Year	Journal	$\bar{r}$	*N*	r_{xx}	r_{yy}
56.	Schneider, Hitlan, & Radhakrishnan	2000	J APPL PSYCHOL	-.26	110	.77	.90
57.	de Jesus	2001	DISSERTATION	.06	225	.90	.
58.	Nelson	2001	DISSERTATION	-.20	719	.84	.75
59.	Buchanan	2002	DISSERTATION	-.44	91	.95	.95
60.	Rodriguez	2002	DISSERTATION	-.23	204	.	.
61.	Fox & Stallworth	2005	J VOCAT BEHAV	-.45	262	.84	.85
62.	Jasinskaja-Lahti, Liebkind, & Perhoniemi	2006	J COMMUNITY APPL SOC	-.15	3,595	.64	.92
63.	Wated & Sanchez	2006	INT J STRESS MANAGE	-.26	114	.90	.84
64.	Jasinskaja-Lahti, Liebkind, & Perhoniemi	2007	INT J INTERCULT REL	-.32	1,783	.58	.92
65.	Wadsworth, Dhillon, Shaw, Bhui, Stansfeld, & Smith	2007	OCCUP MED-C	-.18	626	.	.
66.	de Castro, Gee, & Takeuchi	2008	AM J PUBLIC HEALTH	-.36	1,652	.	.86
67.	Buchanan & Fitzgerald	2008	J OCCUP HEALTH PSYCH	-.33	91	.95	.86
68.	Rospenda, Richman, & Shannon	2009	J INTERPERS VIOLENCE	-.15	2,151	.	.72
69.	Fujishiro	2009	SOC SCI MED	-.15	21,837	.	.
70.	Raver & Nishii	2010	J APPL PSYCHOL	-.04	735	.92	.93
71.	Magee & Umamaheswar	2011	RACE SOC PROBL	-.17	659	.	.
72.	Purnell, Peppone, Alkaraz, McQueen, Guido, Carroll, Shacham, & Morrow	2012	AM J PUBLIC HEALTH	-.08	85,130	.	.
73.	Foynes, Shipherd, & Harrington	2013	CULT DIVERS ETHN MIN	-.21	1,516	.	.90
Coping Behavior							
74.	Utsey	1997	DISSERTATION	.23	214	.80	.86
75.	Ensher, Grant-Vallone, & Donaldson	2001	HUM RES DEV QUAR	-.02	366	.81	.
76.	Nelson	2001	DISSERTATION	.22	719	.84	.96
77.	Din-Dzietham, Nembhardb, Collinsa, & Davis	2004	SOC SCI MED	.16	356	.	.
78.	Fox & Stallworth	2005	J VOCAT BEHAV	.41	262	.84	.68
79.	Jones, Ni, & Wilson	2009	J MANAGE ISSUES	.12	1,252	.	.

Appendix B

Effect Sizes for Different Measures of Perceived Racial Discrimination[9]

a) Relationship between perceived workplace racial discrimination and job attitudes

	N	*K*	$\bar{r}$	ρ	$\sigma_r{}^2$	$\sigma_e{}^2$	% variance due to artifacts	χ^2 *value*	80% credibility interval	95% confidence interval
Ethnic Harassment Experiences (Schneider et al., 2000)	1,680	3	-.22	-.27	.003	.002	55.82%	6.16*	-.33 : -.21	-.27 : -.18
WPDI (James et al., 1994)	586	4	-.43	-.51	.006	.005	83.50%	5.73*	-.56 : -.46	-.50 : -.36
Perceived Discrimination Scale (Sanchez & Brock, 1996)	318	2	-.51	-.60	.049	.004	9.64%	27.89***	-.92 : -.28	-.59 : -.42

b) Relationship between perceived workplace racial discrimination and physical health

	N	*k*	$\bar{r}$	ρ	$\sigma_r{}^2$	$\sigma_e{}^2$	% variance due to artifacts	χ^2 *value*	80% credibility interval	95% confidence interval
Ethnic Harassment Experiences (Schneider et al., 2000)	1,454	2	-.18	-.22	.000	.001	100%	.35	-.22 : -.22	-.23 : -.14
WPDI (James et al., 1994)	1,244	2	-.07	-.08	.001	.002	100%	1.00	-.08 : -.08	-.12 : -.01

[9] *N=Total sample size; K=Total no. of independent samples;* $\bar{r}$ *= sample size weighted mean observed correlation;* ρ *= mean true score correlation;* $\sigma_r{}^2$ *= sample size weighted observed variance of correlations;* $\sigma_e{}^2$ *= variance attributable to sampling error variance;* $\chi^2{}_{K-1} = \left(\frac{N}{(1-\bar{r}^2)^2}\right)\sigma_r{}^2$ *tests homogeneity of correlations (i.e. whether the residual variance is significantly large);*

80% credibility intervals have been calculated using ρ *and the standard deviation of* ρ*; 95% confidence intervals have been calculated using* $\bar{r}$ *and standard error based on sampling error variance* $\sigma_e{}^2$ *when population effect size variance is zero (homogeneous) or using* $\bar{r}$ *and standard error based on the residual variance of correlations after removing sampling error variance (heterogeneous) (Whitener, 1990).*