2011-06-24

Perceived Racism and Mental Health: A Meta-Analytic Review

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A dissertation submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

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December 2010

ABSTRACT

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The present study provides a synthesis of extant research examining the association between perceived racism and mental health. The aims of this study were to identify the overall magnitude of this association and to elaborate on the possible influence of participant characteristics (acculturation level, age, gender, race, education, and socioeconomic status) and study characteristics (year of data collection, geographic region of the study, and research design) in moderating this association. A total of 130 studies were included in the final analysis. The omnibus effect size for this meta-analysis was $r = -.188$ ($p < .001$), which indicates that higher instances of perceived racism were associated with lower levels of mental health. The overall magnitude of this association suggests a moderately small relationship between these two constructs. None of the participant characteristics moderated the results. However, studies conducted in more recent years appeared to be associated with effect sizes of greater negative magnitude than studies conducted in previous years. The implications of these findings for multicultural psychology are discussed and suggestions regarding future research in this area are presented.

Keywords: racism, discrimination, mental health, well-being

ACKNOWLEDGEMENTS

This doctoral dissertation has been one of the greatest undertakings of my life and its completion would not have been possible without the support, encouragement, and expertise of my family, colleagues, and mentors. First, I owe a debt of gratitude to my dissertation chair, Dr. Timothy B. Smith, who has been such a tremendous support and influence in my training, research, and professional development. I also would like to thank my committee members (Dr. Lane Fischer, Dr. Aaron Jackson, Dr. Carol Ward, and Dr. Marleen Williams) for their support and the privilege it has been to collaborate with them on this research.

I would also like to express my appreciation to my peers and colleagues. To my cohort (Colton, Jennie, Lynda, Matt, and Michio), for their support and friendship. Also to my fellow research assistants (Alexandra, Brian, Camm, Drue, Heather, Hillary, Jeff, Jennell, Kirti, Lauren, Mindy, Rod, Serena, Shelly, and Trisha) who contributed so greatly to the completion of this study.

I would like to thank my wife, Finau, for the encouragement, love, and support she has given me and for the personal sacrifices she has made to help me pursue my education. Lastly, I want to thank my parents, whose love and teachings have fostered a value for learning and whose sacrifices have made such opportunities for learning possible.

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Introduction

The foundations of a multicultural society that were laid during the U.S. Civil Rights Movement promoted equal rights for historically disenfranchized peoples. Nevertheless, differences of race, power, and status continue to result in the stratification of individuals and groups in contemporary society. Hierarchical social stratification can have negative consequences, intended or not, on the mental health and life experiences of individuals and groups subjected to inequitable social and systemic structures. Significant barriers to social equity remain. Expressions of racism in America have become much less overt over time, but they continue to be pervasive and problematic (Sue, 2003). The constant experience and interpretation of racial "microaggressions" (Sue et al., 2007) can result in anger, frustration, exhaustion, avoidance, withdrawal, worry, and diminished self-esteem, among other adverse mental health symptoms. Individuals who face persistent social stratification can become emotionally drained, a phenomenon referred to as "racial battle fatigue" (Smith, Allen, & Danley, 2007).

The association of mental health with perceived experiences of racism has increasingly gained attention in the psychological research literature (Corning, 2002). Nevertheless, the scientific study of perceived racism has been restricted because ethical guidelines discourage the experimental manipulation of racist encounters (Fischer, 1999). Although researchers have become increasingly interested in evaluating the perceptions and impact of racial discrimination, it is difficult to empirically isolate the effects of racism among a host of alternative explanations. As such, the majority of research published in this area has been largely correlational and cross-sectional. Sellers (2003) described one of the limitations of this research as follows:

> While a number of studies have found links between perceived experiences of racial discrimination and mental health, most of these studies have used cross-sectional datasets. The use of such datasets has made it difficult to infer the direction of causality regarding the relationships. Although many have argued that experiencing racial discrimination has deleterious consequences for mental health, it is also plausible that individuals suffering from lower levels of mental health are more inclined to interpret ambiguous events as being racially motivated (p. 1081).

Subsequently, Sellers (2003) conducted a longitudinal study to explore the nature of this relationship. The data supported the conclusion that the relationship is unidirectional, with perceived racial discrimination causing greater psychological distress.

If the association between perceived racism and emotional distress is in fact unidirectional, it is worth noting the findings of a large scale national survey by Kessler (1999). This study of the mental health correlates of perceived discrimination in the United States indicated that "if the association between perceived discrimination and mental health found in MIDUS (National Survey of Midlife Development in the United States) are due to a causal effect of discrimination, then discrimination is among the most important of all the stressful experiences that have been implicated as causes of mental health problems" (p. 224). These findings suggest that perceived discrimination may be one of the most significant factors predicting poorer mental health outcomes among ethnic minority populations. These and other findings highlight the importance of exploring how perceived racism is associated with the psychological well-being of ethnic minority individuals and groups.

There is ample evidence that negative stereotypes and institutional dimensions of racism still persist in North America (e.g., Harrell, 2000; Takeuchi, 2003; Williams, 2000). Moreover, it is possible that racism continues to predict lower levels of mental health for people of color despite popular perceptions that racism is no longer a pressing social issue: "The toxin of racism that runs through the veins of society has yet to find an antidote. Racism can traumatize, hurt, humiliate, enrage, confuse, and ultimately prevent optimal growth and functioning of individuals and communities" (Harrell, 2000, p. 42). Racism in society as a social and psychological issue continues to be associated with the well-being of ethnic minority groups and individuals throughout North America. The United States Surgeon General announced in 2001 that race and ethnicity continue to be very relevant to the incidence, prevalence, severity, course, and treatment of mental health problems in the United States (U.S. Department of Health and Human Services, 2001). Although contemporary society has dramatically reduced racial inequities relative to past decades, we are not too distant from the time when racism was deemed "the singular most important issue of our time" (Burke, 1984, p. 50).

The growing body of evidence continues to suggest that perceived racial discrimination is associated with lower levels of mental health and well-being (Clark et al, 1999; Huebner, 2002; Williams & Williams-Morris, 2000; Williams et al, 2003). Although most studies have investigated the physical health correlates of perceived racism, such as vascular reactivity (Clark, 2006; Merritt et al, 2006) and hypertension (Brondolo, 2003; Clark, 2006), some studies have focused specifically on mental health variables, such as emotional distress (Cassidy, 2004; Corning, 2002) and depression (Karlsen & Nazroo, 2002; Noh & Kaspar, 2003). An increasing number of studies have documented this association across specific ethnic populations, including African Americans (Moradi & Subich, 2003), Latino/a Americans (Moradi & Risco, 2006), and

persons of Arab, Asian, and Pacific Island descent, among others (Moradi & Hasan, 2004; Oh, 2001; Yeh et al, 2003). However, a synthesis of the research will be necessary to ascertain the overall magnitude of this association (Cassidy et al., 2004; Corning, 2002; Schnittker & McLeod, 2005) and identify the potential factors that may moderate this relationship (Barnes & Lightsey, 2005; Clark, 1999).

Given the recent increase in research examining the relationship between perceived experiences of racism and mental health among people of color (Pieterse, 2007; Takeuchi, 2003), Williams (2003) stated the "urgent need to *systematically* assess the extent to which exposure and adaptation to racial/ethnic bias affect the health of various population groups" (p. 206, emphasis added). Conducting a meta-analysis would address such requests by researchers, help elaborate the link between perceived racism and mental health, and augment the multicultural competence among mental health professionals by advancing theory and practice relative to racial/ethnic minority clients. This dissertation uses meta-analytic methods to conduct a systematic review of the literature, identify trends, suggest courses for future research development, ascertain the extent to which perceived racism is correlated with mental health, and identify the factors that potentially moderate this relationship.

Review of the Literature

Theoretical Models of Race-related Stress

Researchers have described and operated under various theoretical models of race-related stress. These models help to provide interpretive frameworks from which to generate hypotheses and understand research findings. Earlier conceptualizations of race-related stress were primarily based on social processes. One of the first models developed that is often cited in the literature is *social comparison theory*, developed by Leon Festinger (1954). This theory emphasizes that self-evaluations arise from constant comparisons of oneself with other people. Although this theory was not developed directly to address issues of racism and discrimination, it has been used to generate hypotheses about the possible psychological consequences of racism. Specifically, individuals would be most likely to negatively evaluate themselves when they are negatively evaluated by others (i.e., targets of racial prejudice). This theory can contribute to research exploring how racist-related experiences could potentially become internalized. One of the limitations of this model is that it cannot fully account for the complexities of social comparison, particularly the individual factors that potentially moderate this relationship (Suls, Martin, & Wheeler, 2002).

Following initial research based on social comparison theory, researchers began to explore how the distribution of power and privilege can influence how individuals evaluate themselves. Davis (1959) proposed *relative deprivation theory* as a way of addressing how the inequitable distribution of power and resources can lead to privileging one group over another and influence how individuals evaluate themselves. Specifically, when an individual recognizes the discrepancy between what they have and what others have, they are left feeling relatively deprived. Relative deprivation theory identifies three necessary conditions: (a) an individual will

want a resource; (b) they will compare themselves to others who have that resource; and (c) they will feel entitled to that resource. Exploring the possible impact of relative deprivation stimulated thought around the subjective experience of individuals from the disadvantaged group. It has helped researchers consider the possible implications of racial stressors that occur on a micro-level (e.g. stress, depression, helplessness) and the individual processes involved (e.g. individual wants, interpretations, and coping responses).

Lazarus and Folkman (1984) developed the *transactional model of stress and coping*, which provides a phenomenological conceptualization of the stress response and highlights the interaction between situational/environmental factors and individual propensities. This model identifies three major components: (a) *person-environment interaction* (the individual's cognitive appraisal of the environment as it relates their well-being); (b) *primary appraisal* (evaluating a stressor for its potential harm); and (c) *secondary appraisal* (estimating one's coping resources and evaluating if the potential stressor may outweigh the individual's capacity to cope) (as cited in Utsey, 1998). It is when an individual perceives that the potential stressor outweighs their capacity to cope that they feel emotionally distressed. Schnittker (2005) therefore contends that "discrimination is, by its very nature, a subjective experience. By implication, reports of discrimination are subjective as well and depend on a complex process involving the perception, recall, and reporting of past life experiences" (p. 90). Examination of the link between mental health and the *perceived experience* of discrimination has gained attention in the empirical literature. In previous decades, researchers attended more to variables associated with the perpetrator, rather than with the victim (Corning, 2002). The three components of Lazarus and Folkman's transactional model have provided researchers with a

refined conceptualization of how perceived race-related stress impacts mental health and well-being.

Building upon the person-environment interaction in Lazarus and Folkman's (1984) model, Harell (2000) developed a theory specifically addressing issues of race-related stress, which she defines as follows:

> The race-related transactions between individuals or groups and their environment that emerge from the dynamics of racism, and that are perceived to tax or exceed existing individual and collective resources or threaten wellbeing…the total experience of racism for any individual involves the simultaneous exposure to racism in interpersonal, collective, cultural-symbolic, and sociopolitical contexts (p. 44).

Harrell identifies six types of race-related stress: (a) racism-related life events; (b) vicarious racism experiences; (c) daily racism microstressors; (d) chronic-contextual stress; (e) collective experiences; and (f) transgenerational transmission. It is the cumulative expression of these six forms of race-related stress that are hypothesized to result in decreased mental health and well-being; however, Harrell acknowledges that "research and theory on stress and coping...has fallen short of comprehensively capturing experiences and characteristics that emerge from person-environment transactions involving race and culture" (p. 44). This theory gives particular emphasis to the environmental stressors that could be implicated in the link between perceived racism and mental health.

Other models have explored the influence of coping resources in moderating this relationship, thereby attending to the secondary appraisal component of Lazarus and Folkman's (1984) model. Clark and colleagues (1999) proposed a biopsychosocial model to examine the

role of racism-specific coping responses, or the "cognitions and behaviors used to mitigate the effects (e.g. psychological and physiological) of perceived racism" (p. 810). They identified three reasons for examining the biopsychosocial effects of intergroup and intragroup racism:

> First, if exposure to racism is perceived as stressful, it may have negative biopsychosocial sequelae that might help explain intergroup differences in health outcomes. Second, differential exposure to and coping responses following perceptions of racism may help account for the wide within-group variability in health outcomes among African Americans. Third…specific intervention and prevention strategies could be developed and implemented to lessen its deleterious impact (p. 806).

This model places particular emphasis on the coping responses used by individuals that figure in to the appraisal process, thus accounting for much of the within-group variability in health outcomes and suggesting possible paths for treatment. This model might emphasize exploring the individual factors and characteristics that potentially mediate, or explain, the relationship between perceived racism and mental health. Unfortunately, this is an area that the current research will be unable to account for due to the inability to extract information regarding the coping strategies used by individual participants within research studies.

Alternative theories have considered sociological aspects of perceived racism and have focused on how perceived racism can be understood as a social phenomenon. As an example of a theory based on sociological conceptualizations, Brown (2003) describes *critical race theory* as a possible framework for examining the effects of racial stratification. The five major assumptions of critical race theory are (a) racial stratification is ubiquitous; (b) it is a phenomena that is difficult to understand and next to impossible to fix; (c) race is a social invention; (d) a

phenomenological understanding of being oppressed is legitimate and appropriate; and (e) critical race theorists should try to bring about social justice. Brown elaborates on five mental health problems caused by racial stratification, which are (a) *nihilistic tendencies*, or the tendency to cause self-harm; (b) *anti-self issues*, which are the internalized negative stereotypes related to one's ethnicity; (c) *suppressed anger expression*, which involves denying or repressing anger and hurt feelings; (d) *delusional denial tendencies*, which involve unrealistic optimism and an exaggerated sense of control; and (e) *extreme racial paranoia*, which is characterized by an extreme sense of entitlement. The tenets of this theory seek to promote social justice, address issues of race and power in society, and recognize the importance of having a phenomenological understanding of racism related experiences.

Thus sociological approaches focus on "upstream" social explanations (e.g. the distribution of power, knowledge, and resources), whereas psychological approaches focus on "downstream" explanations (e.g. stress, coping) and how social experiences become internalized. A theory that integrates both sociological and psychological approaches to understanding the relationship between perceived racial discrimination and mental health was proposed by Schnittker (2005). Shnittker emphasizes the role of social psychological processes, which calls attention to "the interface between socially structured arrangements and intraindividual processes" (p. 77). This model for understanding race-related stress might focus on the intersection between individual and social processes, seeking to better understand how social structures affect an individual's experience and how individual's may interpret and make meaning of these experiences.

In summary, various models and theoretical conceptualizations of race-related stress have been used to try and explain the mechanisms and pathways by which racism might adversely

influence mental health. These theoretical models provide different lenses through which relevant data can be interpreted, but they typically provide general, rather than specific, explanations. Not everyone experiences racism in the same way. Several factors likely moderate the association of perceived racism with mental health.

Potential Moderator Variables

Acculturation. A factor that might be relevant to the association of perceived racism with mental health is acculturation. Acculturation has been defined as the psychological changes experienced by individuals of a cultural minority group who are constantly in contact with others of a cultural majority (Berry & Sam, 1997) and is viewed as a developmental process of adapting to and gaining confidence in another culture (Oppedal, 2004). It is also conceptualized in the literature as a resocialization process through which increased contact with the cultural majority group can result in the deterioration of one's own cultural values, attitudes, and behaviors (Yeh, 2003). Berry & Sam (1997) identify four acculturation strategies that can be subdivided across two dimensions: (a) maintaining one's own culture (yes/no); and (b) learning the host culture (yes/no). The four strategies identified are (a) *integration* (maintaining one's own culture and learning the host culture); (b) *assimilation* (not maintaining one's own culture and learning the host culture); (c) *separation* (maintaining one's own culture and not learning the host culture); and (d) *marginalization* (not maintaining one's own culture and not learning the host culture). It is often assumed that the strategy of integration results in the greatest benefits, and research does suggest that most people from younger generations prefer integration to the other strategies identified (Robinson, 2005).

Research does suggest that acculturation, or adapting to and gaining confidence in the host culture, does seem to buffer individuals from experiencing negative outcomes related to

experiencing a new cultural environment. Specifically, research indicates that level of acculturation is negatively correlated with distress (Pillay, 2005) and positively correlated with self-esteem (Oppedal et al., 2004). One question that remains is how much of an influence does acculturation have in moderating the relationship between perceived racism and mental health and whether the trends are consistent for various ethnic groups across social and historical contexts.

Race. Various racial and ethnic groups have quite different socio-historical backgrounds. Presently, little research is available to address how the mental health and well-being of ethnic minority groups may be impacted differentially by experiences of racial discrimination and prejudice. Most research has focused on the experiences of African Americans; however, issues specific to other groups have also been identified in the literature (Williams, 2003). Schnittker (2005) stated that "inconsistencies in results between racial/ethnic groups and between different indicators of physical and mental health are not well understood but point to the importance of considering the diverse meanings of race/ethnicity as they are relevant to health" (p. 79). Various racial/ethnic groups have very unique historical experiences that are sometimes transmitted from one generation to the next. It is important to consider how these factors may moderate their perceived experiences of racism and mental health.

Year of data collection. Some researchers have explored the historical trends in racial attitudes and discussed why it is important to consider these as potential moderators of perceived racism and mental health. While overt racial discrimination has decreased over the past several decades, contemporary forms of racism still persist and are much more subtle and less conscious than the more traditional forms of racism (Dovidio & Gaertner, 2000). Researchers suggest that this form of racism is potentially more harmful to racial/ethnic minorities than overt racism (Sue,

2003). Sue et al. (2007) refers to *racial microaggressions* as the "brief and commonplace daily verbal, behavioral and environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights and insults to the target person or group" (p. 273). The persistence of these microaggressions likely has deleterious consequences for mental health and well-being.

It is clear that while trends in racial attitudes have changed over time, problems related to race are likely to continue well into the twenty-first century (Williams & Williams-Morris, 2000). Researchers suggest the need for developing an understanding of the ways in which historical contexts impact the well-being of different groups of people in modern times (Takeuchi & Williams, 2003). In fact, historical context is central to many definitions of racism which view current circumstances as being directly related to the history of oppression, injustice, and derogatory beliefs and values that have been passed on and maintained over time (Harrell, 2000). This moderator variable was explored in this manuscript by analyzing the data according to the year(s) in which the data were collected.

Age. Some researchers have considered the possible relevance of individuals' age in moderating the relationship between perceived discrimination and mental health. One study found that children were less likely to perceive racist related experiences relative to adults, which finding suggested that experiences of perceived discrimination may be likely to increase with age (Szalacha, 2003). It is unclear, however, if this finding could be attributable to the possibility that children have fewer racist related experiences to report than adults, given their shorter lifespan, or whether there are developmental explanations which might make younger populations less inclined to interpret such events as being racially motivated. Exploring the possible moderating effect of age in this analysis may also help account for possible cohort

effects, with older populations possibly being raised during a time when overt forms of racism in society were much more prevalent.

Gender. It is possible that men and women use different coping strategies that may place them at differential risk for race-related stress (Liang, 2007). Greene (2006) hypothesized that stereotypes may result in differential experiences of racism between genders because men are more likely than women to be perceived as threatening. Some studies have found male participants to perceive higher levels of discrimination than female participants (e.g., Cassidy, 2004), while other studies have found no difference (e.g., Broman, 1997). In other research, studies have suggested that women experience greater levels of discrimination than men. For example, one study found that perceived ethnic discrimination was significantly associated with lower levels of mental health among participants of color; however, women also reported significantly higher levels of discrimination than did the men in this sample (Ryff, 2003). In short, the research findings have been mixed and the potential moderating influence of gender has been unclear. The current analysis was able to explore the potential moderating influence of gender by exploring the degree to which the gender composition of the sample was able to account for the variance of the results obtained.

Measurement of Perceived Racism

A necessary part of the ongoing research concerning perceived racism and mental health has been the construction of various measurement instruments to assess the experiences of individuals. There are six measures that have been most commonly used in assessing perceptions of discrimination. Utsey (1998) provides a description of these commonly used measures and their psychometric properties: (a) The Racism Reaction Scale (RRS), (b) Perceived Racism Scale (RAS), (c) Index of Race-Related Stress (IRRS), (d) Racism and Life Experience

Scale – Brief Version (RaLES-B), (5) Schedule of Racist Life Events (SRE), and (6) The Perceptions of Racism Scale (PoRS).

The RRS (Thompson, 1990) assesses an individual's level of suspicion about being treated differentially or being personally threatened. The measure was standardized using a sample of European-American students (n = 70) and African American college students (n = 87), with a total sample N = 157. The reliability estimates for the European American and African American students were α = .69 and α = .59, respectively, with an overall reliability estimate of α = .68.

The PRS (McNeilly et al, 1996) measures an individual's perceived racism both within the past year and across their lifetime. The measure was standardized using college students (n = 169) and a community sample (n = 104) across four subscales: (a) academic, (b) employment, (c) public, and (d) racist statements. The reliability estimates ranged from .87 to .92 for the student sample, and .87 to .95 for the community sample.

The IRRS (Utsey & Ponterotto, 1996) is a measure of one's daily stressful life experiences related to racism and discrimination. The measure was standardized using two different studies (n = 302 and 341, respectively) across four racism subscales: (a) cultural, (b) institutional, (c) individual, and (d) collective. The two studies yielded similar estimates of internal consistency across the four subscales: cultural racism (α = .87), institutional racism (α = .80 to .85), individual racism (α = .83 to .84), and collective racism (α = .77 to .79).

The RaLES-B (Harrell, 1994) is a self-report measure of the perceived impact of racism on an individual's life. The measure consists of two subscales: (a) *self* (how racism has affected them personally), and (b) *group* (how racism has affected their racial group as a whole). The

measure was standardized using a sample of adolescents (N = 139) and yielded reliability estimates of α = .90 for the group subscale and α = .88 for the self subscale.

The SRE (Landrine & Klonoff, 1996) is a self-report measure used to assess the frequency of discrimination within the past year, across one's lifetime, and the degree to which the individual perceived the event(s) to be stressful. Using an overall sample of N = 153, the following internal consistency reliability estimates were obtained: within the past year, α = .95; across one's lifetime, α = .95; and perceived level of stress, α = .94.

The PoRS (Green, 1995) is a measure of the possible impact of racism on low birth weight and preterm delivery among African American women. The measure was designed to be administered to childbearing African American women, but was standardized using a convenience sample of non-childbearing African American women. Cronbach's alpha coefficients on two separate studies were α = .88 (N = 109) and α = .91 (N = 136), respectively.

These measures of race-related stress were designed to assess the behavioral and mental health outcomes of perceived racism and discrimination for African Americans, but they have laid the groundwork for developing measures for other racial/ethnic groups (e.g., Collado-Proctor, 1999). Clearly, perceived racism has various definitions and has been measured in various ways across several different dimensions (e.g. individual, collective, institutional, cultural). These differences in measurement could significantly influence the findings within a study and a systematic review of the literature that accounts for variation in measurement would facilitate a more accurate understanding of this association. For the purposes of this study, it should be noted that only measures (including subscales) assessing perceived personal experiences of racism were used. This was done to isolate the association between personally experienced racist related events and mental health, among a host of alternative explanations.

Additionally, measures assessing racism-related stress (i.e., IRRS) were not included in the analysis because of the potential confound of being too redundant with mental health measures, potentially inflating the effect size estimates.

In summary, the body of research examining the relationship between perceived racism and mental health is growing. Researchers address an urgent need to assess how racial and ethnic discrimination may be associated with mental health for various population groups (Williams, 2003), to examine this link using multiple indicators of mental health (Moradi & Hasan, 2004), and to find out if "extant findings reflect sample-specific idiosyncracies or patterns generalizable to larger populations" (Moradi & Hasan, 2004, p. 426). Identifying the magnitude of this association and identifying those factors that potentially moderate this relationship can be tremendously helpful in the practice of counseling and psychotherapy (Barnes & Lightsey, 2005, Fischer & Shaw, 1999). Such a broad analysis is virtually impossible to conduct within a single study. Hence the purposes of this meta-analysis are to (1) synthesize extant research examining the association between perceived racism and mental health and (2) report how this association is moderated by other variables (i.e., participant characteristics, research procedures).

Method

Literature Search

In a meta-analysis, the literature search could be equated with finding research participants in a traditional quantitative research study. Just as it is optimal for a sample of research participants to be representative of the intended population, it is also optimal that the manuscripts obtained be representative of the existing research literature, ideally with the entire population of studies included in the final meta-analysis. Various techniques were used to ensure that the synthesis of existing literature was as comprehensive as possible. Every effort was made to find all published and unpublished research examining the association between perceived racism and mental health.

Manuscripts included in the meta-analysis had to be written in English and contain quantitative data examining the association between perceived racism and some aspect of mental health. The present analysis intentionally used broad inclusion criteria for perceived racism and mental health to be consistent with the vast majority of research literature, which treat these constructs more globally. Using broader inclusion criteria for these two constructs also allowed the analysis to be purposefully broad. It should be noted that only perceived personal experiences of racial discrimination were included in the analysis and that these experiences were analyzed across three dimensions: frequency, perception, and multiple/mixed. Mental health was also treated more generally in this study and was analyzed across three dimensions: mental health symptoms (i.e. anxiety, depression, and stress), well-being (i.e. self-esteem, life satisfaction, mastery, and subjective well-being), and multiple/mixed. The effect sizes were scaled so that positive correlations would denote lesser pathology as a function of perceived

racial discrimination and negative correlations would denote greater pathology as a function of perceived racial discrimination.

In order for the data to be interpreted and analyzed, only studies reporting quantitative data could be included in the final meta-analysis. As such, single-participant designs, case studies, qualitative studies, and conceptual/theoretical papers were not included in the analysis because these designs do not result in computable effect sizes. However, these types of manuscripts were used to help inform the theoretical rationale for this research and to identify the moderator variables to be used in examining the relationship between perceived racism and mental health.

As a first step in the literature search, researchers reviewed electronic journal databases, including Academic Search Premier, the Education Resource Information Center (ERIC), Family and Society Studies Worldwide, Medline, PsycINFO, and Social Work Abstracts. Search terms were consistent across all electronic databases and consisted of the following root words: (*"Racial and Ethnic Attitudes," Racism, Prejudice, "Race and Ethnic Discrimination"*) and (*"Mental Health," "Life Satisfaction," Adjustment, "Emotional Control," "Adjustment Disorders," "Coping Behavior," "Emotional Disturbances," Emotions, "Mental Disorders," Psychopathology, Resilience* (*Psychological*), *Depression* (*Emotion*), *"Emotional States," "Major Depression," Sadness, Anxiety, "Social Anxiety," "Generalized Anxiety Disorder," Neurosis, "Panic Disorder," Shame, Stress, "Self Esteem," Trauma, "Posttraumatic Stress Disorder"*) not (*Netherlands, Sweden, Finland, England, London, UK, "United Kingdom," Norway*). In order to make sure that studies were not overlooked, electronic databases were reviewed by a second investigator using the same search terms. To further reduce the likelihood of inadvertent omissions, researchers who authored or co-authored three or more studies

included in the analysis were contacted by e-mail to solicit additional unpublished research. Reference lists of obtained studies were also searched manually to identify studies that could also be used in the meta-analysis.

Data Coding

The data extraction for this meta-analysis was performed in three waves by two teams, each team consisting of at least two research coders. Coding in teams helped improve the accuracy of data collection and entry. In the first wave, a team of at least two coders would extract independent and identifiable characteristics from each study. These characteristics included (a) source of the study (journal article, dissertation, etc.); (b) year the study was published; (c) geographical location of sample collected; (d) the number of participants and their composition by age, gender, race/ethnicity, socioeconomic status, acculturation status, and education level; (e) the perceived racism measure used; (f) the mental health measure used; (g) the statistical procedures used, including any statistical controls; (h) the research design used; and (i) the effect size estimate. In the second wave of coding, this process was repeated by another team of at least two coders who had access to the coding of the first team. In the third wave, at least one member from the first and the second team would resolve discrepancies until a consensus was reached. If the coders were unable to come to agreement or if they were unsure of their methods, the dissertation chair helped determine the best course of action.

To help maintain high levels of inter-rater reliability, the coders were trained in calculating effect sizes and using a coding sheet for consistent data extraction and entry. Data coding in teams of at least two assisted with accuracy and allowed for deliberation. Inter-rater reliability was calculated by comparing the data input by the first team with the data input by the second team. Inter-rater agreement for categorical data was calculated using Cohen's kappa and

was found to be acceptably high (average Cohen's Kappa = .84). Intra-class correlations were used to determine the inter-rater reliability for continuous level data. These were also found to be acceptably high (average intraclass correlation coefficient = .96). The high levels of inter-rater agreement can be partly attributed to the researchers' level of training and the benefit of coding in teams.

Effect Size Calculations

Because the studies included in the meta-analysis used different research designs and statistics, it was necessary to standardize these findings so that they could be analyzed and interpreted in a single metric. Because this meta-analysis examined the association between perceived racism and mental health, the statistical findings reported in the individual studies were transformed into bivariate correlations (Pearson's *r*). This was done by using meta-analysis calculator software (Lyons, 1996). In some cases, findings were reported as having reached "statistical significance" but did not report the precise statistical value. In such cases, the *r* value was estimated using the corresponding *alpha* (assuming two-tailed *alpha* = .05, unless reported otherwise). For studies in which the findings were reported as "not having reached statistical significance," the effect size was coded as $r = .00$. This method yielded a more conservative effect size estimate and reduced the likelihood of falsely rejecting the null hypothesis.

In order to maintain consistency and comparability, the direction of the effect size estimates were uniformly coded. Negative *r* values would suggest that higher instances of perceived racism were associated with lower levels of mental health. Conversely, positive *r* values would suggest that higher instances of perceived racism were associated with more favorable mental health.

Several of the studies used in the meta-analysis included more than one effect size. For example, if multiple measures of mental health (i.e. anxiety, depression, self-esteem) were correlated with a single measure of perceived racism (i.e. in an intercorrelation table), each of these would be coded as a separate effect size. According to the assumption of statistically independent samples, there is a greater likelihood of non-independence in the data if all of the within-study effect sizes are used in the omnibus analysis (Cooper, 1998; Cooper & Hedges, 1994; Hedges & Olkin, 1985). This is because the omnibus analysis assumes that each of the effect sizes are statistically independent, even though they may share a common participant sample or mental health measure. To correct this, one aggregate effect size was calculated for each study by averaging the within-study effect sizes (each weighted by their respective sample size). Only the aggregate effect sizes were used in the omnibus analysis; thus each study contributed only one data point in the analyses.

Publication Bias

Publication bias presents one of the greatest threats to the validity of a meta-analytic study (Begg, 1994). Because the nature of meta-analysis research involves the synthesis of previous research studies, the omission of certain studies could bias the results and misrepresent the association between perceived racism and mental health. One concern that places meta-analytic research under particular scrutiny is the "file-drawer phenomenon," which is the suppression of clinical evidence in the best interest of possible stakeholders. There are two main reasons why meta-analytic research can be susceptible to publication bias: (a) meta-analyses are likely to include more published than unpublished studies; and (b) published studies are more likely to report significant findings and therefore larger effect sizes. The combination of these two factors could result in reporting inflated effect size estimates, unless publication bias is

evaluated and accounted for. To rule out the possibility of publication bias, Orwin's fail-safe N was calculated (Begg, 1994). This is the theoretical number of "missing" studies, with effect sizes averaging zero (no effect), that would be needed to reduce the overall magnitude of the association to statistical nonsignificance.

A scatter-plot was also used to assess the possibility of publication bias. The scatter-plot was graphed with effect sizes transformed to Fisher's Z (x-axis) and the standard error of the study (y-axis). An inverted funnel shape would provide evidence against publication bias because as the number of participants increase, decreased variability in the magnitude of the effect sizes would be expected. Studies with fewer research participants (located nearer the x-axis) would be expected to have higher variability in the effect sizes estimated because of the increased probability of sampling error. When studies with smaller sample sizes appear across the range of effect sizes, and the corners of the curve do not appear to be missing, publication bias would not be indicated.

Duvall and Tweedies' (2000a, 2000b) "trim and fill" method was also used to estimate the number of "missing" studies and provide a more conservative estimate of the effect size. This process involves removing ("trimming") outlying studies that do not have corresponding values at the other end of the distribution and then recalculating the mean effect size. This process is repeated until the distribution is symmetrical on either side of the mean. As recommended by Duval and Tweedie (2000b), L_0+ was used to estimate the number of missing studies. The "filling" part of this method involves counterbalancing the "trimmed" studies by adding the estimated "missing" values to the other side of the distribution. Once the "missing" data are included, the resulting dataset is used to calculate a new omnibus effect size. If the adjusted overall effect size is not significant, this would indicate possible publication bias.

Data Analyses

It is clear that factors other than perceived racism could influence the mental health status of individuals within the various studies. To adjust for this unaccounted variability in the effect size estimates, random effects models were used when aggregating and analyzing the data. Random effects models account for variability in findings that are not accounted for exclusively by the measures of perceived racism. Random effects models can also help the researchers make inferences beyond the immediate studies included in the analysis and therefore provide findings that are more generalizable to the greater population. Using random effects models, as opposed to fixed effects models, is consistent with current recommendations in the literature (Field, 2005).

Once the omnibus effect size was calculated using the aggregate effect sizes from the individual studies (weighted by inverse variance), the influence of possible moderating variables were examined using random effects weighted analyses of variance (ANOVAs) for categorical variables and random effects weighted correlations for continuous level variables. Because categories on the coding sheet were general, rather than specific, only crude group differences were estimated. However, these analyses helped identify if differences across demographic variables (i.e. race, age, gender) were able to predict differential effect size magnitude. Overall, these analyses potentially enhance our understanding of the various factors that predict more or less favorable relationships between perceived racism and mental health.

Results

Descriptive Statistics

A total of 130 studies examining the association between perceived racism and mental health were included in the present meta-analysis (see Table 1). These studies were checked to make sure the samples used were not statistically redundant (i.e., identical databases were removed). A total of 55,318 individuals were represented across the 130 studies. Of the 130 studies, 126 (97%) reported the age and gender composition, with 61% of the total self-identifying as female and the mean age of the total sample being 26 years. All 130 studies reported the racial/ethnic composition, with 48% of the total identifying as African American, 21% as Hispanic/Latino(a) American, 21% as Asian American, 4% as Native American, and 6% as "Other" American. The effect sizes included in the present analysis did not include individuals who identified as White/European American.

Omnibus Analysis

The omnibus effect size was calculated using one data point from each of the 130 studies included in the meta-analysis. The random effects weighted average effect size for the 130 studies was r = -.188 (SE = .01, p < .001), with a 95% confidence interval of r = -.21 to r = -.17. Effect size estimates ranged from r = -.48 to r = .23. The effect size estimates demonstrated considerable variability, with the index of heterogeneity reaching statistical significance ($Q_{(129)}$ = 623, p < .001; I^2 = 79.3). The statistical significance of these findings suggest that the variance of the effect sizes obtained were sufficiently accounted for based on the measures used and that the findings were not likely compromised by sampling error. Additional analyses were conducted in order to determine the degree to which different variables moderated the variability in effect size estimates.

Moderation by Continuous Level Variables of Study and Participant Characteristics

Random effects weighted correlations were used to calculate the effect size estimates for the continuous level variables, which included year the data were collected, age, gender, and ethnicity (see Table 2). The present meta-analysis examined the degree to which these variables influenced the direction and magnitude of the association between perceived racism and mental health.

The year the data were collected was taken from each study's methods section, or if not reported, inferred based on the year the study was published. To investigate if there may be differences in the association between perceived racism and mental health across time, the year the data were collected was correlated with the corresponding average effect size and then analyzed to see if this accounted for a significant portion of the between-studies variance. The weighted correlation was significant at -.19 ($p < .05$), indicating that higher (more recent) years were associated with lower levels of mental health. This finding suggests that the magnitude of the association between perceived racism and mental health was greater in recent years than in previous years and that current perceptions of ethnic discrimination may be more predictive of lower levels of mental health than in the past.

Participant age was also explored as a possible moderating variable in the 126 studies reporting that information; however, the weighted correlation was found to be .06 and was not statistically significant ($p = .54$). This finding suggests that the direction and magnitude of the association between perceived racism and mental health was not significantly accounted for by the age of the participants; rather, this association remained fairly consistent across age.

Participant gender composition was reported in 126 studies, and these data were analyzed by correlating each study's effect size with the percentage of female participants. The random

effects weighted correlation was .09 and was not statistically significant (p = .33), suggesting that gender composition of the research sample was not associated with the link between perceived racism and mental health.

To explore how perceived racism might be differentially associated with mental health outcomes across race, ethnicity was included as a potential moderating variable in this analysis. In order to see whether race accounted for a significant portion of the variance between studies, the percentage of participants from each racial group was correlated with the corresponding effect size for that study. Four racial groups were represented across the 130 studies included in the final meta-analysis. The random effects weighted correlations across racial group did not suggest that any of the racial groups accounted for a significant portion of the between-studies variance. Of the 69 studies including at least of portion of African American participants, the weighted correlation was .06 (p = .68), suggesting that the proportion of African American participants in the study's sample does not sufficiently predict the direction nor magnitude of the association between perceived racism and mental health. These results were fairly similar for the percentage of participants from other racial groups as well. Of the 35 studies that included Latina/o American participants, a correlation of .08 (p = .62) was found. Similarly, the correlation for the 34 studies including Asian American participants was .01 (p = .94), and for the 6 studies including Native American participants, the correlation was -.22 (p = .69). These findings indicate that there is not a significant association between the proportion of participants from any of these four racial groups and the results obtained.

Table 2

Random Effects Weighted Correlations of Study Effect Sizes With Participant and Study Characteristics

Variable	*r*	*p*-value	*k*
Year	-.19	< .05	130
Mean Age	.06	.54	126
% Female	.09	.33	126
% African American	.06	.68	69
% Latina/o American	.08	.62	35
% Asian American	.01	.94	34
% Native American	-.22	.69	6

Moderation by Categorical Level Variables of Study and Participant Characteristics

Random effects weighted analyses of variance (ANOVAs) were used to assess the degree to which categorical variables moderate the relationship between perceived racism and mental health (see Table 3). The categorical level moderator variables included in the final analysis can be divided into participant characteristics and study characteristics. Participant characteristics used in the final analysis include population sample type, geographic region, race, education level, socioeconomic status, acculturation level, and racial composition. Study characteristics that were included as potential moderating variables are design type, publication status,

perceived racism measure used, type of perceived racism measure, and outcome measure used. The *Q* statistic was used to indicate the sum of between-studies variance for each moderator variable of interest and its associated *p*-value was reported. A *p*-value of less than .05 would suggest significant differences between the different levels of that moderator variable and would warrant further exploration to see what those differences might suggest. For each of the categories comprising each moderator variable, the effect size, confidence interval, and number of studies used were also reported.

The type of sample investigated was broken down into three groups of participants: normal community members, university students, and mixed samples. Results of the one-way ANOVA revealed a *Q* value of 1.7 ($p = .43$). This suggests that there was not a significant difference between the three types of samples in predicting the direction and magnitude of the association between perceived racism and mental health.

Geographical location of the data collection was also not found to significantly moderate the results. No statistically significant differences were observed across seven different geographical regions (Southern US, Western US, West Coast US, Central US, Eastern US, multiple regions within the US, and Canada; $Q = 8.0$, $p = .24$). Effect sizes were of similar magnitude across all regions and all were in the negative direction, suggesting that increased perceptions of racism are associated with lower levels of mental health across North America.

An analysis of race as a possible moderator variable was restricted to the categories of African American, Asian American, and Latina/o American participants. There were insufficient studies including Native American participants (n = 6), and the racial group categorized as "other" would be too difficult to interpret. The resulting *Q* value for race was 1.74 ($p = .42$), which suggested that the association between perceived experiences of racism and mental health

did not differ among studies using either African American, Asian American and Hispanic/Latino(a) American participants.

In additional analyses, education level (Q = .27, p = .87), socioeconomic status (Q = 1.22, p = .54), acculturation level (Q = 7.03, p = .13), and whether or not the sample was racially homogeneous or heterogeneous (Q = .01, p = .92) did not moderate the results. These participant characteristics were not associated with the results obtained across studies.

The next set of analyses investigated the possible moderating influence of study characteristics. The first of these examined the type of design used in the study, cross-sectional or longitudinal. The resulting Q value was 1.95 (p = .16). However, of the 128 studies that were identified as using either cross-sectional or longitudinal datasets, only 15 were identified to have used a longitudinal design.

One study characteristic that was found to significantly moderate the relationship between perceived racism and mental health was the type of racism measure used (Q = 7.16, p < .05). The three types of racism measures used were frequency of perceived racist events, perception/suspicion of perceived racist events, and multiple/mixed measures assessing both frequency and suspicion. Analysis of the data suggested that measures assessing frequency of perceived racist events were significantly associated with lower levels of mental health than perception/suspicion or mixed measures of racist events were. While the results obtained were significantly moderated by the *type* of racism measure, they did not differ across the specific measures of perceived racism (Q = 7.9, p = .10).

Three categories of the dependent variable, mental health, were examined. These included symptoms of mental illness (e.g., depression, anxiety), well-being (e.g., self-esteem, self-mastery, happiness, and social support), and multiple indicators of mental health and well-

being. The resulting *Q* value was 5.78 ($p = .06$), with the differences between these three categories not reaching statistical significance.

Assessment of Publication Bias

One of the common criticisms of meta-analysis research is the potential for publication bias to adversely impact the results. Because published studies tend to have larger effect sizes than unpublished studies, they can artificially inflate the magnitude of the association between the constructs of interest. In addition, published studies are much more accessible and therefore more likely to be included in a meta-analysis.

In this meta-analysis, several measures were taken to minimize the risk of publication bias through data collection techniques. One of the techniques used was contacting individual researchers who had authored, co-authored, or served on the dissertation committee for three or more studies included in the meta-analysis and requesting them to provide any unpublished manuscripts meeting criteria for inclusion in this study. Of the 130 studies included in the final meta-analysis, 35 of these were unpublished; the difference in average weighted effect sizes between published and unpublished studies did not reach statistical significance ($Q = .92$, $p = .34$). Because the difference in average effect size between published and unpublished studies did not reach statistical significance, this provides some indication that the overall results of the meta-analyses were not significantly inflated by the greater number of published studies.

Additional statistical measures were utilized to evaluate the possible presence of publication bias. The first of these was Orwin's (1983) fail-safe *N*. This procedure determines the hypothetical number of "missing" studies that would be required to make the findings of this meta-analysis negligible, assuming the average effect size of the added studies is zero. For this meta-analysis, the fail-safe *N* was calculated to be 419. It is very unlikely that there were 419

studies unaccounted for in this meta-analysis. It is even less likely that these 419 studies would average a null effect size. This offers some evidence that publication bias may not have been a significant factor influencing the final results of this study.

We next examined the distribution of results by plotting the study's effect size (transformed to Fisher's Z) by its respective standard error (see Figure 1). An expected normal distribution would reveal a an inverted funnel shape, narrowest at the top where the standard error is smaller, thus resulting in less variance between studies and revealing a more precise estimate of the "true" effect size. This narrowing of the funnel plot would be expected to approximate the omnibus mean. Studies with fewer participants tend to have greater variability in the effect sizes obtained because of the higher likelihood for sampling error (Lipsey & Wilson, 2001). The scatterplot of the data for this analysis resembled the expected distribution, with the exception of some asymmetry resulting from several apparently "missing" studies in the bottom right hand corner of the distribution. This finding suggested that several non-significant and positive correlations remained unaccounted for in the meta-analysis. The number of "missing" studies appeared to be about 10, which was not a large percentage of the 130 studies obtained. Nevertheless, we conducted an additional analysis to provide a more precise estimate of the number of studies likely missing from the analyses.

Specifically, Duval and Tweedie's (2000a, 2000b) "trim and fill" method was used to account and adjust for publication bias in this meta-analysis. This statistical procedure estimates the hypothetical number of "missing" studies that are not accounted for because of publication bias. Using the distribution of studies from the meta-analysis, this method involves removing ("trimming") outlying studies that do not have corresponding values on the other side of the data distribution. The removed studies are then replaced and counterbalanced by "filling" in the

estimated values for the "missing" studies, and then the mean effect size is recalculated. Results of the "trim and fill" method for the current sample of 130 studies estimated a total of 33 "missing" studies. The readjusted value shifted the random effects weighted mean effect size from r = -.188 to r = -.14 (p < .01), but this remained statistically significant. This offers some evidence that the results obtained in this study are not completely due to publication bias. Nevertheless, it appears that the true estimate of the effect may be smaller than the value originally reported.

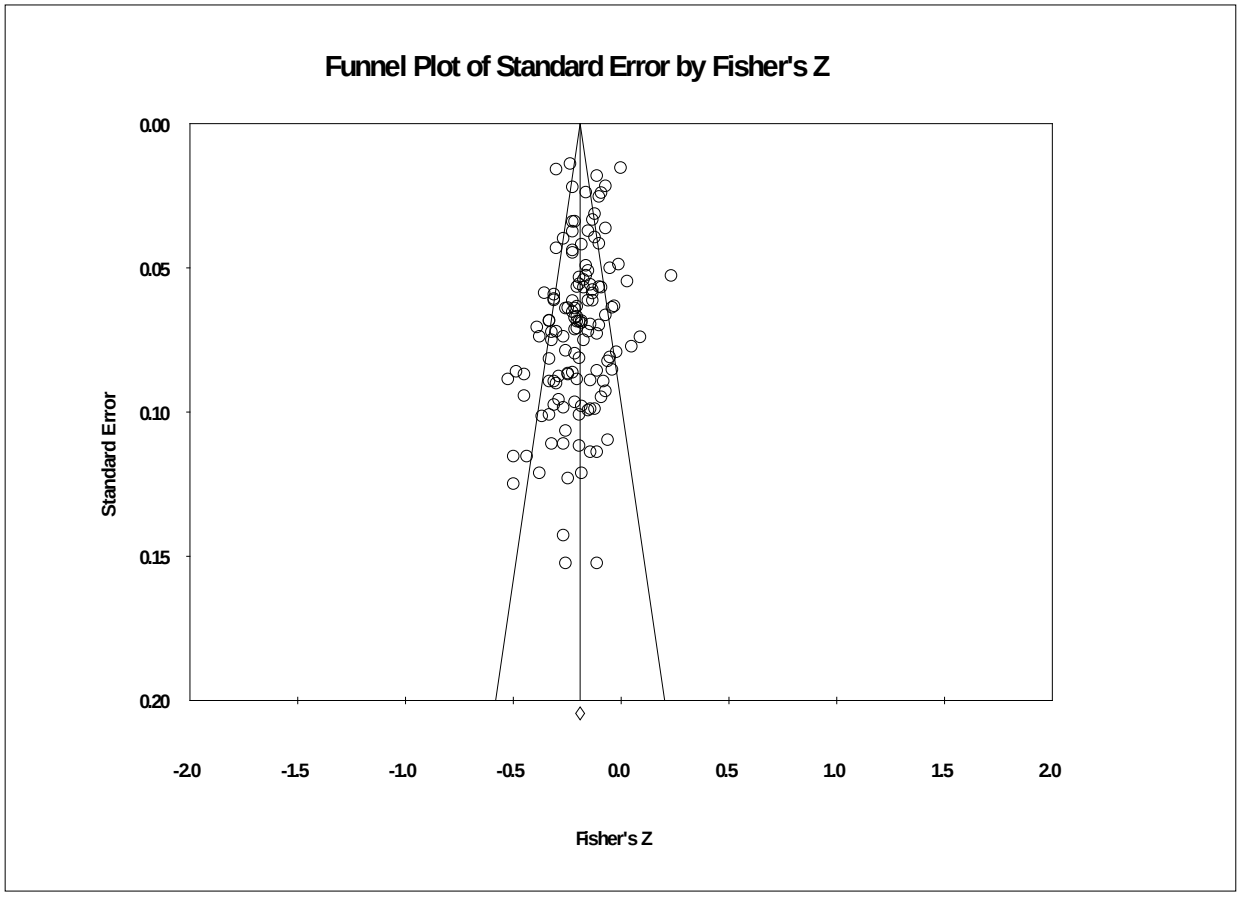

Figure 1. Funnel plot of transformed effect sizes by standard error.

Table 3

Differences Across Study and Participant Characteristics

Variable	*Q*	*p*	*r*	95% CI	*k*
Population Sampled	1.70	.43			
Normal Community Members			-.17	[-.20, -.15]	79
Students			-.20	[-.24, -.16]	34
Mixed Sample			-.20	[-.26, -.15]	17
Location	8.03	.24			
Multiple States			-.15	[-.19, -.11]	33
Southern States			-.22	[-.28, -.15]	16
Western States			-.16	[-24, -.09]	9
West Coast			-.19	[-.24, -.14]	22
Central States			-.18	[-.22, -.13]	25
Eastern States			-.24	[-.29, -.18]	19
Canada			-.18	[-.28, -.09]	6
Race	1.74	.42			
African American			-.17	[-.20, -.14]	57
Asian American			-.20	[-.25, -.15]	23
Hispanic/Latino(a) American			-.19	[-.24, -.14]	21

Table 3 (continued)

Variable	*Q*	*p*	*r*	95% CI	*k*
Years of Education	0.27	.87			
8th Grade or Less			-.18	[-.23, -.13]	19
9th Through 12th Grade			-.17	[-.21, -.13]	32
High School Graduate or Greater			-.19	[-.21, -.16]	61
Socioeconomic Status	1.22	.54			
Lower			-.18	[-.22, -.15]	44
Lower-Middle			-.16	[-.21, -.12]	23
Middle or above			-.20	[-.23, -.16]	52
Acculturation Level	7.03	.13			
Very Low			-.20	[-.26, -.13]	12
Low			-.23	[-.29, -.17]	17
Moderate			-.21	[-.25, -.16]	30
High			-.17	[-.20, -.14]	55
No Information Provided			-.14	[-.19, -.09]	16
Sample Racial Composition	.01	.92			
Heterogeneous			-.19	[-.24, -.14]	18
Homogeneous			-.18	[-.21, -.16]	112

Table 3 (continued)

Variable	*Q*	*p*	*r*	95% CI	*k*
Design-type	1.95	.16			
Cross-sectional			-.19	[-.21, -.17]	113
Longitudinal			-.15	[-.20, -.09]	15
Publication Status	.92	.34			
Unpublished			-.17	[-.21, -.13]	35
Published			-.19	[-.21, -.17]	95
Perceived Racism Measure	7.90	.10			
Multiple/Mixed			-.19	[-.23, -.15]	34
Schedule of Racist Events			-.22	[-.27, -.16]	19
Perceived Racism Scale			-.27	[-.37, -.18]	8
Racism and Life Experiences Scale			-.14	[-.20, -.09]	17
Researcher Developed			-.17	[-.20, -.14]	52
Type of Racism Measure	7.16	< .05			
Frequency			-.21	[-.25, -.18]	42
Perception			-.13	[-.18, -.08]	19
Multiple/mixed			-.18	[-.20, -.15]	69

Table 3 (continued)

Variable	*Q*	*p*	*r*	95% CI	*k*
Outcome Measures	5.78	.06			
Mental Health Symptoms [a]			-.21	[-.25, -.18]	42
Well-being			-.14	[-.20, -.09]	18
Multiple (>1 of above)			-.17	[-.20, -.15]	70

Note. *k* = number of studies.

[a]Scaling was inversed, such that positive correlations denote less pathology.

Discussion

Overall Findings

This study examined the correlation between mental health and perceived personal experiences of racism among people of color in the United States and Canada. Using meta-analytic techniques to synthesize and summarize extant research examining this relationship, the overall magnitude of this association was estimated and the potential moderating variables were explored. The overall magnitude of this association was $r = -.188$ ($p < .001$), suggesting a moderately small but statistically significant relationship between these two constructs. This finding indicates that higher perceived personal experiences of racism are associated with lower levels of mental health and well-being. The findings of this meta-analysis are quite robust, utilizing a total of 55,318 individuals from 130 studies across 7 different geographic regions in the U.S. and Canada and representing a range of racial, age, education, and SES groups.

Review of Moderating Variables

One of the moderator variables found to significantly influence the results obtained in this meta-analysis was the year in which the data were obtained ($r = -.19$, $p < .05$). Studies conducted in more recent years appeared to predict lower levels of mental health than studies conducted in previous years. This is the first study conducted that has been able to demonstrate a possible historical trend, suggesting that the association between these two constructs may becoming more pronounced. Although it is difficult to identify what these trends may be attributed to, it may be possible that the face of racism in North America has modernized and become more subtle (Dovidio & Gaertner, 2000) and potentially more harmful (Sue, 2003) to people of color. Other possible explanations for this trend may also reflect changes in instrumentation or increased sensitivity of measures which have been developed since earlier

studies. It should also be noted that of the 130 studies included in this analysis, the vast majority (n = 102) have been conducted between the years 2000 and 2010, suggesting that this is also a phenomena that has received significantly more attention in recent years than in previous years.

Further review of the one-way ANOVA's for participant characteristics did not reveal any additional findings that reached statistical significance. This suggests that the relationship between perceived racism and mental health was fairly consistent across participant characteristics, and that the association between perceived racism and mental health could not be better accounted for based on age, gender, sample type, geographic region, race, education level, socioeconomic status, acculturation level. Although no significant differences were found between the different levels of these variables, it should be noted that all of the effect sizes for the categorical variables were in the negative direction, suggesting that higher instances of perceived racism were consistently associated with lower levels of mental health.

Age was not found to significantly moderate the results, but this finding seems consistent with the possibility that children and adolescents have the cognitive capacities for perceiving incidents of racism and that this may be associated with mental health in similar ways that might be expected in adults. This also seems consistent with proposed developmental models for understanding perceptions and attributions of discrimination by children (Brown & Bigler, 2005), which suggest that children have the basic social and cognitive abilities to perceive discrimination by age 6. It should be noted, however, that the mean age of participants in this study was 26 years, and that only a small portion of studies (n = 7) had an average sample age less than 12 years.

Gender was measured as a continuous level variable based on the percent of female participants in each study's sample. Gender was not found to exert a significant moderating

effect on the results obtained. Other research exploring the association between these two constructs for men and women of color have had mixed results. The findings revealed here may suggest that while perceived racist events may be experienced differentially by men and women of color, the overall magnitude of this relationship may be quite similar.

Sample type was not found to moderate the results obtained in the analysis, but was examined because studies are most often conducted in institutions of higher learning and can therefore have a much greater representation of college students. In this particular analysis, however, there was a much greater representation of members of the community (n = 79), as compared to university students (n = 34), but the differences between these groups did not sufficiently account for the variance in the results.

Geographic region might have been expected to moderate the results because of the potential for geographic, historic, and sociopolitical contexts to influence the frequency and magnitude of racism-related experiences. In addition, studies exploring contact hypothesis have found that in communities where there is greater representation of one's own racial group, lower levels of discrimination are reported (Hunt et al., 2007). The results obtained in this analysis did not indicate any significant differences between the geographic categories used. This is the first study conducted to observe how perceived experiences of racism may be differentially associated with mental health across geographic region, but these findings would suggest that the association between these two constructs may be fairly standard for people of color in the United States and Canada. It is also important to acknowledge that geographic region as measured in this study comprises many states and may not accurately reflect community specific factors, which could also vary greatly within each of these regions.

Researchers have addressed the need to better understand this association across racial/ethnic groups (Schnittker, 2005), citing the inconsistencies of the findings between race and recognizing the unique historical experiences that are sometimes transmitted from one generation to the next. The variable of race in this analysis was not found to significantly moderate the results. One possible explanation for this may be that the experience of racist-related events by people of color may transcend race and be more of a human experience than a uniquely racial experience.

Education level was explored as a potential moderator variable and was divided into three categories (8^{th} grade education or less, 9^{th}-12^{th} grade education level, and high school graduate or beyond). No significant differences were found, suggesting that the association between perceived racism and mental health could not be better accounted for based on one's level of education. This is one of the first studies conducted exploring how education level might moderate the mental health correlates of perceived racism. Higher levels of educational attainment could be presumed to contribute to higher levels of self-esteem and well-being, potentially buffering the magnitude of the association between these two constructs. The findings from this analysis, however, would not support such a hypothesis. One possible explanation could be that education level does not exert a moderating influence between these two constructs. Another could be that while individuals may personally benefit from attaining higher levels of education, they may also be predisposed to having more frequent experiences of racist-events (Cardarelli, Cardarelli, and Chiapa, 2007; Watson et al., 2002) or more highly sensitized to perceiving racist encounters, thus counterbalancing any personal gains that might be acquired from pursuing higher education. Whatever the reason(s) may be, additional research

will be needed to help elaborate the moderating influence of education level on these two constructs.

Both perceived racism and socioeconomic status (SES) have been shown to be related to health outcomes. By way of comparison, a meta-analytic study (Pinquart & Sörensen, 2000) of the association of SES with subjective well-being among the elderly found results comparable in magnitude to those of the present meta-analysis: SES life satisfaction (r = .17, p < .001), self-esteem (r = .15, p < .001), and happiness (r = .18, p < .001). However, the degree to which SES might moderate the impact of perceived racism is not well understood (Watson et al., 2002). In this meta-analysis, two categories of SES were included (lower and lower-middle). These were measured based on the sample description using the following criteria: lower (receiving public assistance, welfare cases, mean income below 40k, and evidence for low education) and lower-middle (income around 50k, high school education equivalent, college students). SES did not significantly moderate the results in this analysis. One possible explanation could be that there was not a sufficient range of SES categories represented in this analysis to make a valid estimation of its moderating effect size. It should be noted that there was not a sufficient sample of middle-upper SES studies to be included in the analysis. In addition, only a relatively small portion of the 130 studies (n = 67) contained sufficient information to be assigned to an SES category.

Finally, acculturation level was explored as a potential moderating variable in this analysis, but the results were not significant. Previous research findings examining the association between acculturation and mental health have been mixed (Rodríguez, 2006). In addition, research has not been clear about how acculturation could potentially moderate the impact of perceived racism on mental health. The results obtained in the current analysis suggest

that acculturation level does not account for a significant portion of the variance between perceived racism and mental health. However, it should be noted that the indicators used for measuring acculturation level in this analysis were inferred and restricted to the information that could be retrieved from the sample descriptions (i.e. generational status in the U.S., education level, language preference, age cohort, and community description). More specifically, evidence suggesting greater levels of contact with the host (U.S.) culture was interpreted as representing higher levels of acculturation. Studies providing more precise estimates of acculturation (i.e. using standardized instruments) could assist with exploring this variable further.

Across study characteristics only the type of racism measure used was found to significantly moderate the results ($Q = 7.16$, $p < .05$). The three categories for this variable assessed for frequency of racist encounters ($r = -.21$), perception/suspicion of racist encounters ($r = -.13$), or multiple/mixed indicators of racist encounters ($r = -.18$). The results suggest that measures assessing frequency were significantly associated with lower levels of mental health than suspicion and mixed measures. One possible explanation for this moderating effect could be that participants felt more justified in accounting for the frequency of perceived racist encounters than they were the suspicion of perceived racist encounters.

Design-type was another study characteristic included as a moderator variable in this analysis. Although no significant differences were found between cross-sectional and longitudinal designs in predicting the magnitude and direction of the effect sizes, this expands our understanding of the nature of the relationship between perceived experiences of racism and mental health. One of the criticisms of cross-sectional designs is that they are unable to indicate causal relationships (Sellers, 2003). The findings of this meta-analysis revealed that the association between perceived racism and mental health for the longitudinal designs were also in

the hypothesized direction, which lends some support for the possibility that perceived experiences of racism may *cause* lower levels of mental health, a direction that cannot necessarily be implied using cross-sectional data. It should be noted, however, that of the 128 studies using one of these two design-types, only 15 were identified to be longitudinal.

The type of mental health outcome measure used by researchers was not found to significantly moderate the results. The three dimensions of outcome measure used in this analysis were mental health symptoms (i.e. depression, anxiety, stress), well-being (i.e. self-esteem, life satisfaction, subjective well-being), and multiple measures. The data do not seem to warrant distinguishing between aspects of mental health, suggesting that this may be more of a global issue, rather than a symptom-specific issue.

Other study characteristics that were not found to significantly moderate the results included publication status and perceived racism measure used. Although these were not found to significantly moderate the results, when considered with the other moderator variables, this does provide us with some ideas for how to proceed with future research in this area.

Implications for Future Research

In the research literature, racist life experiences are largely preceded by the qualifier, "perceived," as a way of accounting for the fact that these experiences are largely qualitative in nature. It is possible for these experiences to be moderated by individuals' interpretations, previous experiences, and other personal characteristics that are not well understood in the literature. Additional research will be needed to identify and understand these better. It is also important to recognize that the framework for understanding these individual differences would be to enhance our understanding of the individual processes by which perceived experiences of racism may result in differential mental health outcomes. Because of the qualitative nature of

these experiences, some researchers could attribute findings to faulty interpretations or overreactions, but it is important that studies examining the experiences of people of color exercise caution to avoid committing racial microinvalidations, which exclude, negate, or nullify the thoughts, feelings, or experiential reality of individuals of color (Sue et al., 2007).

Qualitative research exploring experiences of discrimination among people of color can enhance our understanding of the experiential themes and patterns related to this very complex construct. This may also expand our understanding of the processes and pathways by which perceived racism can affect mental health (Williams & Mohammed, 2009). The present findings also seem consistent with the qualitative experiences of African-American college students (Smith, Allen, & Danley, 2007), Asian American (Sue et al., 2009), and Latina/o undergraduate students (Yosso, Smith, Ceja, & Solórzano, 2009), many of whom identify feelings of disbelief, rage, alienation, fear, invisibility, pain, anger, disgust, distress, diminished sense of belonging, guilt, discouragement, self-doubt, hopelessness, frustration, invalidation, and even resiliency, related to personally experienced racial microaggressions.

It will be important for future research to identify both risk and protective factors that potentially moderate the relationship between perceived racism and mental health. These may include individual, psychological, and social factors that can help buffer the possible effects of perceived racism or that might place individuals and groups at increased risk. Various studies have examined the potential moderating influences of ethnic identity (Caldwell et al., 2004; Mossakowski, 2003), coping strategies (Gaylord-Harden & Cunningham, 2009; Liang et al., 2007), acculturation (Noh & Kaspar, 2003), self-esteem (Wei et al., 2008), and neighborhood racial composition (Hunt et al., 2007); however, there are many other factors that are not well understood and that warrant further exploration. Additionally, researchers should be aware that

asking participants about coping may trigger different perceptions about the impact of racism than would measures of racism and mental health alone. In other words, it might sensitize participants to their resilience rather than just the stressful/damaging parts of their experience. Having a better understanding of what these factors might be can lead to greater resources for treatment, prevention, and education.

A common criticism of cross-sectional research is the inability to indicate causal relationships. There are obvious ethical restrictions that would prevent the experimental manipulation of racist encounters, however, analogue studies could be a reasonable alternative for exploring the potential influence of racist-events in eliciting affective responses. Analogue studies have demonstrated that individuals who perceive racism in scenarios specifically intended not to be racist are more likely to report distress than individuals who do not perceive those same scenarios to be racist (Bennett et al., 2004). The use of such studies could also enhance our understanding of the role of appraisal in the perceived racism and mental health link (Lazarus & Folkman, 1984).

In order for this research to be viable, it will be important that it continue well into the 21st century. Relatively little research has been conducted or published examining these constructs prior to the year 2000. The continuation of these studies will be essential for recognizing trends over time and better understanding how the racist life experiences and mental health for people of color is continuing to evolve in North America. In addition, if the trends found in this analysis are an indication of how this relationship may proceed into the future, it will be important to monitor if the magnitude of this association may be increasing in severity.

In addition, research regarding the perceived racist experiences of other racial groups will be necessary to better understand the complexities of this association and account for possible

moderating effects between groups. For example, very few studies were conducted using Native American (n = 6), Middle-Eastern, and Pacific Island participants. It is clear that the socio-historical experiences of these groups are varied and that the racism-related experiences and themes encountered by these groups can be quite different. Additionally, intersections of race with other forms of identity are not well understood. It is possible that individuals with multiple minority statuses may experience greater levels of discrimination than might be reported by those with fewer minority statuses. This could also help us understand and account for a greater portion of the variance within racial group.

Finally, methodologically robust studies will be needed to enhance our understanding of the complexities of the association between perceived racism and mental health. As was revealed in this analysis, various demographic and participant characteristics warrant further exploration, such as SES, acculturation level, and race (particularly for less represented groups). Studies using longitudinal designs, large sample sizes, a broad range of age groups, and random selection procedures, could contribute greatly to the body of literature available and also help us understand the nature of this association with greater clarity. It will be important to not only understand perceived racism and mental health in terms of group differences but individual differences as well.

Implications for Practice

The findings of this analysis can assist clinical practitioners in considering the possible implications of racist life experiences on the mental health status of clients of color, while also recognizing that this may only be one aspect of a client's distress. The overall magnitude of this relationship was moderate in severity, but it remained consistently in the negative direction.

While experiences of racist discrimination might vary considerably from one individual to another, it can be an important issue for therapists to explore with clients.

Additionally, it could be very important for clinicians to consider how experiences with racial discrimination could influence the therapeutic relationship. Working through these issues within the client-therapist relationship can be therapeutic. It also seems very appropriate for clinicians to increase their awareness of racial microaggressions, which are the "brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights and insults toward people of color" (Sue et al., 2007, p. 271). All people, including clinicians, are susceptible to making racial microaggressions, as they are by definition not conscious or intentional. Nevertheless, these have the potential to significantly impair the therapeutic alliance (Sue et al., 2007).

Lastly, clinicians should remember that racial discrimination is only one source of social stratification; characteristics such as age, SES, gender, acculturation, and education level, also undoubtedly influence an individual's experiences with discrimination. It would be appropriate for therapists to use a holistic conceptualization of the client's background, experiences, and identities in addressing their presenting concerns and considering other potential therapeutic issues involved.

Strengths and Limitations of the Meta-Analysis

One of the benefits of this meta-analysis was the ability to synthesize and summarize a large body of research and explore the nature of several moderating variables and participant characteristics that could not otherwise be accounted for in a single study. The overall sample size included in the meta-analysis helped to reduce the effects of sampling error and increase our

confidence in the stability of the findings. As such, these meta-analytic data can help us better understand the nature of the relationship between perceived racism and mental health in ways that might not otherwise be revealed using single studies with smaller sample sizes (Lipsey & Wilson, 2001). Additionally, there is potentially less systematic bias than might be expected in single studies because of the large representation of studies utilizing various research methods, designs, and instruments. In light of these strengths, the findings of meta-analysis research potentially provide a more precise estimate of the true association between the constructs of interest and increase the generalizability of the results (Cook & Leviton, 1982; Matt & Cook, 1994).

In addition to considering the strengths of meta-analysis research, there are also limitations that are uniquely specific and also inherent in the methodology. It is important to recognize these limitations so that the findings can be considered and interpreted accordingly. One of the primary limitations of this particular meta-analysis is that it involved correlational data, so causal relationships cannot be established. As such, it is unclear if perceived racism may have deleterious mental health consequences or if individuals with lower levels of mental health are more likely to interpret events as being racially motivated. The studies using longitudinal designs (n = 15) do provide some evidence that the relationship between perceived racism and mental health may be unidirectional, with perceived racist experiences being associated with lower levels of mental health measured at a later time. Nevertheless, the available data cannot confirm causality.

Similarly, while the findings in this meta-analysis can describe the degree to which the variables considered moderate the relationship between perceived racism and mental health, they cannot describe how these might mediate the relationship. In other words, it can describe how

the variables considered might influence the direction and magnitude of the relationship, but it cannot explain the nature of this relationship (Baron & Kenny, 1986). An example of a mediator variable could be the evaluation the racist experience for its potential threat or harm (i.e. when a perceived racist experience is interpreted to be personally threatening or harmful, mental health is decreased).

Another limitation of meta-analysis research is related to the inclusion criteria. Only empirical studies using quantitative data were included in the analysis. As such, single-participant designs and qualitative studies, which contribute greatly to the wealth of knowledge we have related to these constructs, could not be included. Another limitation is that the meta-analysis can only be as valid as the studies it comprises. All identified studies meeting minimum inclusion criteria were used in the final analysis, however, with this comes the risk of including studies that are not of the highest quality. One possible indicator of the quality of studies included in this analysis is the proportionately large number of published studies (n = 95) to unpublished studies (n = 35).

The possibility of researcher bias is a potential threat to the internal validity of the meta-analysis. This could involve the exclusion of studies, whether intentional or not, because they do not fit hypothesized effect size directions or do not appear to be of sufficient quality, among other possible reasons. A preventive measure used in this study to reduce experimenter bias was the use of multiple researchers using the same search terms and journal databases in order to minimize the number of inadvertent omissions.

Another limitation of meta-analysis research is that only crude group differences can be estimated. This is because effect size estimates are aggregate values comprising multiple participants within a single study. As such, the findings are unable to account for effects

occurring at the level of the individual (i.e. ethnic identity, self-esteem, social support and acculturation). Additionally, acculturation and SES were moderator variables used in this study that were inferred and therefore even less likely to detect differences at the individual level.

Lastly, another possible limitation of this meta-analysis was the inability to control or account for hidden factors which could also be moderating the relationship. For example, it was unclear in this analysis how the occurrence of natural disasters (Chia-Chen Chen et al., 2007), intersecting identities (Semino, 2009), or discrimination based on factors other than race (Moradi & Subich, 2003), may have interacted with the results obtained in the individual studies, and hence the overall analysis. It is not possible to partition out the possible effects of these variables in a meta-analysis, so future studies that account for such factors may be able to explain a larger portion of the variance and help us better understand the nature of the relationship between racial discrimination and mental health.

Conclusion

The results of this meta-analysis support the hypothesis that perceived experiences of racism for people of color may be associated with lower levels of mental health. The aims of this study were to report the overall magnitude of this association and to explore the potential moderating effects of various participant and study characteristics. The results of 130 studies were aggregated. The resulting average weighted effect size of $r = -.188$ ($p < .001$) suggested a moderate but statistically significant association between these two constructs. Although the participant characteristics used in this analysis were not found to significantly moderate the relationship between perceived racism and mental health, they are a very integral part of the human experience and influence individuals, groups, and communities in ways not otherwise accounted for in this study. It is also clear that perceived racism has received significantly

greater attention in recent years, as evidenced by the proportion of studies (n = 102) that have been conducted since the year 2000. Studies conducted in more recent years were also found to significantly predict lower levels of mental health, indicating that racism is not merely a thing of the past. It will be important to continue to track these associations well in to the future, to identify the risk and protective factors that potentially mediate this relationship, to understand the processes and pathways by which perceived racism is associated with lower levels of mental health, and to identify if there is in fact a causal relationship between these two constructs.

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Table 1

Descriptions of the 130 Studies Included in the Meta-Analysis

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Ahmed (2006)	Frequency	Multiple/Mixed	237	-0.22	-0.34	-0.10
Alamilla, Kim, & Lam (2010)	Frequency	Anxiety/stress	130	-0.48	-0.60	-0.34
Alvarez & Juang (2010)	Frequency	Multiple/Mixed	199	-0.21	-0.34	-0.07
Araujo (2004)	Multiple/Mixed	Anxiety/stress	246	-0.25	-0.36	-0.13
Armenta & Hunt (2009)	Perception	Well-being	80	-0.14	-0.35	0.08
Banks (2004)	Frequency	Depression	194	-0.31	-0.43	-0.18
Banks, Kohn-Wood, & Spencer (2006)	Frequency	Mental Health	570	-0.18	-0.26	-0.10
Barnes (2003)	Perception	Multiple/Mixed	209	-0.14	-0.27	0.00
Barnes, & Lightsey (2005)	Frequency	Multiple/Mixed	114	-0.09	-0.27	0.10
Barry, & Grilo (2003)	Multiple/Mixed	Well-being	170	0.05	-0.10	0.20
Benavidez (2006)	Frequency	Well-being	46	-0.25	-0.50	0.04

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Borrell, Kiefe, Williams, & Diez-Roux, et al. (2006)	Perception	Multiple/Mixed	1,722	-0.09	-0.14	-0.04
Bowen-Reid, & Harrell (2002)	Multiple/Mixed	Mental Health	154	-0.19	-0.34	-0.03
Bowman (2008)	Frequency	Mental Health	80	-0.11	-0.32	0.11
Branscombe, Schmitt, & Harvey (1999)	Perception	Multiple/Mixed	139	-0.11	-0.27	0.06
Brody, Chen, Murry, Ge, Simons, & Gibbons (2006)	Frequency	Multiple/Mixed	714	-0.22	-0.29	-0.15
Broman, Mavaddat, & Hsu (2000)	Perception	Mental Health	312	-0.09	-0.20	0.02
Broman (1997)	Perception	Well-being	312	-0.17	-0.28	-0.06
Brondolo, Brady, Thompson, & Tobin, et al. (2008)	Frequency	Multiple/Mixed	362	-0.16	-0.26	-0.06
Brown, Williams, Jackson, & Neighbors, et al. (1999)	Perception	Mental Health	759	-0.07	-0.14	0.00
Buchanan (2002)	Frequency	Multiple/Mixed	91	-0.25	-0.43	-0.05
Bynum, Burton, & Best (2007)	Frequency	Anxiety/stress	247	-0.24	-0.35	-0.12
Bynum, Best, Barnes, & Burtons (2008)	Frequency	Mental Health	107	-0.18	-0.36	0.01
Caldwell, Kohn-Wood, & Schmeelk-Cone, et al. (2004)	Perception	Mental Health	325	-0.19	-0.29	-0.08

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Chao (2006)	Frequency	Multiple/Mixed	865	-0.21	-0.27	-0.15
Chavez, & French (2007)	Perception	Multiple/Mixed	105	-0.12	-0.31	0.07
Chen, Mallinckrodt, & Mobley (2002)	Frequency	Anxiety/stress	52	-0.26	-0.50	0.01
Cheng, Fancher, Ratanasen, & Conner, et al. (2010)	Frequency	Mental Health	191	-0.11	-0.25	0.03
Chia-Chen Chen, Keith, Airriess, Li, & Leong (2007)	Perception	Multiple/Mixed	69	-0.24	-0.45	0.00
Cislo (2008)	Frequency	Depression	78	-0.41	-0.58	-0.21
Coker, Elliot, Kanouse, Grunbaum, & Schwebel (2009)	Perception	Depression	3,923	-0.29	-0.32	-0.26
Combs, Penn, Cassisi, Michael, & Wood, et al. (2006)	Frequency	Mental Health	128	-0.32	-0.47	-0.16
Concepcion (2008)	Frequency	Multiple/Mixed	292	-0.34	-0.44	-0.23
Cooke (2002)	Frequency	Well-being	268	-0.13	-0.25	-0.01
Dawson (2009)	Multiple/Mixed	Anxiety/stress	246	-0.21	-0.33	-0.09
DeBlaere (2009)	Frequency	Multiple/Mixed	212	-0.18	-0.31	-0.05
Dorton (2007)	Frequency	Mental Health	269	-0.30	-0.41	-0.19

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Ellis, McDonald, Lincoln, & Cabral (2008)	Frequency	Depression	135	-0.42	-0.55	-0.27
Finch, Kolody, & Vega (2000)	Multiple/Mixed	Depression	3,012	-0.11	-0.15	-0.08
Fischer, & Shaw (1999)	Frequency	Multiple/Mixed	119	-0.07	-0.25	0.11
Flores, Tschann, Dimas, Bachen, & Pasch, et al. (2008)	Frequency	Multiple/Mixed	215	-0.19	-0.32	-0.06
Ford (2006)	Perception	Multiple/Mixed	160	-0.21	-0.35	-0.06
Forman (2003)	Perception	Multiple/Mixed	1,546	-0.10	-0.15	-0.05
Franzini, & Fernandez-Esquer (2004)	Frequency	Mental Health	1,745	-0.16	-0.21	-0.11
Fujishiro (2009)	Perception	Mental Health	5,071	-0.23	-0.26	-0.20
Gary (1995)	Frequency	Multiple/Mixed	537	-0.29	-0.37	-0.21
Gaylord-Harden, & Cunningham (2009)	Perception	Multiple/Mixed	268	-0.15	-0.27	-0.03
Gee (2002)	Perception	Mental Health	314	-0.10	-0.21	0.01
Gee, Spencer, Chen, Yip, & Takeuchi (2007)	Frequency	Mental Health	2,047	-0.22	-0.26	-0.18
Greene, Way, & Pahl (2006)	Frequency	Multiple/Mixed	106	-0.26	-0.43	-0.07

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Greene (1997)	Frequency	Multiple/Mixed	185	0.09	-0.05	0.23
Griffin (2006)	Frequency	Multiple/Mixed	130	-0.20	-0.36	-0.03
Hagen (1998)	Frequency	Multiple/Mixed	86	-0.06	-0.27	0.15
Harris-Britt, Valrie, & Kurtz-Costes (2007)	Frequency	Well-being	128	-0.08	-0.25	0.09
Hwang, & Goto (2008)	Multiple/Mixed	Mental Health	186	-0.26	-0.39	-0.12
Jenifer (2009)	Frequency	Mental Health	101	-0.32	-0.49	-0.13
Jipguep, Sanders-Phillips, & Cotton (2004)	Frequency	Multiple/Mixed	129	-0.14	-0.31	0.03
John (2001)	Frequency	Multiple/Mixed	207	-0.10	-0.23	0.04
Juang, & Cooston (2009)	Frequency	Depression	226	-0.20	-0.32	-0.07
Kemp-Blackmon (1999)	Perception	Well-being	150	-0.06	-0.22	0.10
Kim (2002)	Perception	Mental Health	216	-0.18	-0.31	-0.05
Kimura (2008)	Multiple/Mixed	Multiple/Mixed	4,196	0.00	-0.03	0.03
Klonoff , Landrine, & Ullman (1999)	Frequency	Multiple/Mixed	520	-0.22	-0.30	-0.14

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Kwate, Valdimarsdottir, Guevarra, & Bovbjerg (2003)	Frequency	Mental Health	71	-0.36	-0.55	-0.14
Lambert, Herman, Bynum, & Lalongo (2009)	Frequency	Depression	500	-0.22	-0.30	-0.13
Landrine, & Klonoff (1996)	Frequency	Mental Health	153	-0.32	-0.46	-0.17
Lee (2003)	Perception	Multiple/Mixed	67	-0.46	-0.63	-0.25
Lee (2005)	Perception	Multiple/Mixed	84	-0.31	-0.49	-0.10
Lee (2010)	Frequency	Mental Health	863	-0.22	-0.28	-0.16
Liang, Alvarez, Juang, & Liang (2007)	Multiple/Mixed	Mental Health	336	0.03	-0.08	0.14
Lightsey, & Barnes (2007)	Perception	Multiple/Mixed	195	-0.15	-0.28	-0.01
Mattis, Fontenot, & Hatcher-Kay (2003)	Frequency	Well-being	112	-0.28	-0.44	-0.10
Medley-Proctor (2005)	Frequency	Well-being	400	-0.05	-0.15	0.05
Moghaddam, Taylor, Ditto, Jacobs, & Bianchi (2002)	Perception	Multiple/Mixed	104	-0.15	-0.33	0.04
Moradi, & Subich (2003)	Frequency	Mental Health	133	-0.28	-0.43	-0.12
Moradi, & Hasan (2004)	Frequency	Multiple/Mixed	108	-0.30	-0.46	-0.12

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Moradi, & Risco (2006)	Frequency	Multiple/Mixed	128	-0.30	-0.45	-0.13
Mossakowski (2003)	Multiple/Mixed	Depression	2,109	-0.07	-0.11	-0.03
Murry, Brown, Brody, Curtona, & Simons (2001)	Frequency	Multiple/Mixed	386	-0.15	-0.25	-0.05
Murry, Harrell, Brody, Chen, & Simmons, et al. (2008)	Frequency	Multiple/Mixed	897	-0.13	-0.19	-0.07
Neblett, White, Fort, Philip, Nguyen, & Sellers (2008)	Frequency	Multiple/Mixed	361	0.23	0.13	0.33
Noh, & Kaspar (2003)	Multiple/Mixed	Depression	180	-0.31	-0.44	-0.17
Noh, Kaspar, & Wickrama (2007)	Frequency	Multiple/Mixed	180	-0.17	-0.31	-0.02
Noh, Beiser, Kaspar, Hou, & Rummens (1999)	Perception	Depression	643	-0.12	-0.20	-0.04
Nyborg (2000)	Frequency	Multiple/Mixed	101	-0.19	-0.37	0.01
Nyborg, & Curry (2003)	Frequency	Multiple/Mixed	84	-0.26	-0.45	-0.05
Odom, & Vernon-Feagans (2010)	Frequency	Depression	414	-0.16	-0.25	-0.06
Oh (2001)	Frequency	Well-being	140	-0.04	-0.20	0.13
Ong, & Edwards (2008)	Multiple/Mixed	Multiple/Mixed	215	-0.20	-0.33	-0.07

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Padela, & Heisler (2010)	Multiple/Mixed	Multiple/Mixed	1,016	-0.12	-0.18	-0.06
Peters (2006)	Multiple/Mixed	Multiple/Mixed	162	-0.02	-0.17	0.13
Phinney, Madden, & Santos (1998)	Frequency	Multiple/Mixed	164	-0.25	-0.39	-0.10
Piedrahita-Palacio (2007)	Frequency	Multiple/Mixed	137	-0.22	-0.37	-0.05
Pieterse, & Carter (2007)	Frequency	Multiple/Mixed	216	-0.32	-0.43	-0.19
Prelow, Danoff-Burg, Swenson, & Pulgiano (2004)	Frequency	Mental Health	46	-0.11	-0.39	0.19
Prelow, Mosher, & Bowman (2006)	Frequency	Multiple/Mixed	135	-0.24	-0.39	-0.07
Rice (2006)	Frequency	Well-being	229	-0.07	-0.20	0.06
Rivas-Drake, Hughes, & Way (2008)	Frequency	Multiple/Mixed	203	-0.37	-0.48	-0.24
Rousseau, Hassan, Measham, & Lashley (2008)	Frequency	Mental Health	252	-0.03	-0.15	0.09
Rucker (2005)	Frequency	Anxiety/stress	83	-0.19	-0.39	0.03
Schulz, Gravlee, Williams, & Israel, et al., (2006)	Frequency	Depression	343	-0.17	-0.27	-0.07
Scott, & House (2005)	Frequency	Multiple/Mixed	71	-0.18	-0.40	0.06

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Sellers, & Shelton (2003)	Frequency	Mental Health	267	-0.22	-0.33	-0.10
Sellers, Copeland-Linder, Martin, & Lewis (2006)	Frequency	Multiple/Mixed	314	-0.20	-0.30	-0.09
Semino (2009)	Frequency	Mental Health	110	-0.21	-0.38	-0.02
Shah (2002)	Perception	Multiple/Mixed	78	-0.46	-0.62	-0.26
Shibazaki (1999)	Frequency	Well-being	136	-0.24	-0.39	-0.07
Shorey, Cowan, & Sullivan (2002)	Multiple/Mixed	Well-being	126	-0.29	-0.44	-0.12
Shrake, & Rhee (2004)	Frequency	Multiple/Mixed	217	-0.32	-0.43	-0.20
Smokowski, & Bacallao (2007)	Frequency	Multiple/Mixed	323	-0.14	-0.25	-0.03
Smokowski, Chapman, & Bacallao (2007)	Frequency	Mental Health	100	-0.35	-0.51	-0.16
Stone, & Han (2005)	Perception	Multiple/Mixed	578	-0.10	-0.18	-0.02
Suarez-Morales, & Lopez (2009)	Perception	Multiple/Mixed	138	-0.45	-0.57	-0.31
Szalacha, Erkut, Coll, Alarcon, & Fields, et al. (2003b)	Multiple/Mixed	Well-being	248	-0.04	-0.16	0.08
Szalacha, Erkut, Coll, Alarcon, & Fields, et al. (2003a)	Perception	Multiple/Mixed	291	-0.13	-0.24	-0.02

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Tom (2006)	Perception	Well-being	421	-0.01	-0.11	0.09
Umana-Taylor, & Updegraff (2007)	Frequency	Multiple/Mixed	273	-0.30	-0.40	-0.19
Veniegas (1999)	Perception	Anxiety/stress	251	-0.20	-0.32	-0.08
Vohra & Adair (2000)	Perception	Well-being	186	-0.36	-0.48	-0.23
Walls, Chapple, & Johnson (2007)	Frequency	Multiple/Mixed	721	-0.15	-0.22	-0.08
Walters (2004)	Frequency	Well-being	223	-0.21	-0.33	-0.08
Wei, Ku, Russell, Mallinckrodt, & Liao (2008)	Perception	Multiple/Mixed	354	-0.19	-0.29	-0.09
Whitbeck, Hoyt, McMorris, Chen, & Stubben (2001)	Frequency	Multiple/Mixed	195	-0.29	-0.41	-0.16
Whitbeck, McMorris, Hoyt, & Stubben, et al. (2002)	Frequency	Multiple/Mixed	287	-0.30	-0.40	-0.19
White (2008)	Frequency	Multiple/Mixed	303	-0.13	-0.24	-0.02
Wong, Eccles, & Sameroff (2003)	Frequency	Multiple/Mixed	629	-0.26	-0.33	-0.19
Woodard (2002)	Frequency	Multiple/Mixed	105	-0.14	-0.32	0.05
Ye (2005)	Perception	Well-being	115	-0.42	-0.56	-0.26

Table 1 (continued)

Study	Measure of Discrimination	Dependent Measure	*N*	Effect Size (*r*)	95% CI Lower	95% CI Upper
Yoder, Whitbeck, Hoyt, & LaFromboise (2006)	Frequency	Mental Health	201	-0.20	-0.33	-0.06
Yoo, & Lee (2005)	Perception	Multiple/Mixed	155	-0.05	-0.21	0.11