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Race and Psychological Distress: The South African Stress and Health Study

Pamela Braboy Jackson[1], David R. Williams[2], Dan J. Stein[3], Allen Herman[4], Stacey L. Williams[5], and Deidre L. Redmond[1]

Abstract

We analyze data from the South African Stress and Health Study, a nationally representative in-person psychiatric epidemiologic survey of 4,351 adults conducted as part of the World Mental Health Survey Initiative between January 2002 and June 2004. All blacks (Africans, Coloreds, and Indians) initially report higher levels of non-specific distress and anger/hostility than whites. Access to socioeconomic resources helps explain differences in non-specific distress between Coloreds and whites and Indians and whites. However, only when social stressors are considered do we find few differences in psychological distress (i.e., non-specific distress and anger/hostility) between Africans and whites. In addition, self-esteem and mastery have independent effects on non-specific distress and anger/hostility, but differences between Coloreds and whites in feelings of anger/hostility are not completely explained by self-esteem and mastery. The findings contribute to the international body of work on social stress theory, challenge underlying assumptions of the minority status perspective, and raise a series of questions regarding mental health disparities among South Africans.

Keywords

life events, psychological distress, race, South Africa, stress

Present day South Africa, a continually emerging anti-apartheid state, provides investigators with the opportunity to explore a fundamental stress process among a group of adults who have lived through an extreme form of life stress. According to the social stress perspective, we would expect some residual effects of apartheid (Pearlin 1989) and many scholars have discussed the "continuous traumatic stress" of apartheid (Straker 1987). Some scholars heed caution about using language such as the "New South Africa" or "post-apartheid era" because the excitement generated from such word choices, "gets cast in terms that cannot do justice to the continuities" (Nixon 1991:21). Even though there has been an end to legally mandated racial segregation, many are still suffering from the legacy of apartheid. This article focuses on how feelings of psychological distress may be patterned by race for the four racial groups residing in South Africa: Africans, Coloreds, Indians, and whites.[1]

First, we will address a basic question: What is the relationship between race and psychological distress? Within the discussion below, we review scholarship highlighting definitions of race and the

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role played by socioeconomic status (SES) in our discussion of race differences in psychological distress. Second, we describe the process through which stress may manifest itself among South Africans using the conceptual framework initially introduced by Pearlin and colleagues (1981) and then elaborated by Ensel and Lin (1991). Throughout this review of the literature, we propose a series of hypotheses derived from a consideration of research findings on U.S. adults but informed by the historical context of South Africa. Third, we test these models in our effort to provide an initial glimpse into a set of previously unaddressed issues regarding race and psychological distress among a large sample of South African adults.

LITERATURE REVIEW

Race in South Africa

The racial classification system adopted in South Africa has generated much discussion (e.g., see Greenstein 1993, 1997). The fluidity of racial identity historically is as evident in South Africa as the rest of the populated world (Giliomee 1995; Omi and Winant 1994). Accordingly, it would appear that there has been no clear consensus about who falls within particular racial categories in the South African context (Posel 2001). However, by 1911, three racial categories were created using the following labels at that time: Bantu, Mixed and other Colored, and European/white. Within the broader category of Bantu were a host of ethnic groups such as Baca, Fingo, Swazi, Xhosa, and Zulu (Khalfani and Zuberi 2001).

Prompted by the Population Registration Act of 1950, three racial categories were officially created, and every citizen of South Africa had to carry identity papers (passes) designating his or her racial classification as Native, white, or Colored. The categories of Native and Colored were then broken down further by ethnic group. The numbering system itself demonstrates the social distancing illustrated by the ranking of race in the Population Registration Act. For example, whites were assigned the number of 00 while the Nama of southwest Africa were assigned the highest code of 09; all other racial groups fell in the middle. Two residual categories of "other Asian" and "other Colored" were also utilized (Khalfani and Zuberi 2001; Posel 2001).

By 1960, four broad racial categories were enumerated in the South African census: African/black, Asian, Colored, and European/white. Racial cataloging resulted in a hierarchical structure with Europeans/whites at the top, distinguished by their high levels of capital (i.e., formal education, technical skill, influence), and Africans at the bottom, due to their lack of comparable capital. Coloreds and Asians occupied the middle ranks since they had more contact with whites and had more skills in certain occupations (Posel 2001; Vahed 2001). By the 1996 census, Indians and Asians were combined into a single racial category (Khalfani and Zuberi 2001), with the exception of the Taiwanese Chinese and Japanese who were considered "honorary White." These particular Asian groups were granted many of the same privileges as whites (Seidman 1999). Despite ongoing resistance by ethnic minorities to the homogenization of the population, the current classification scheme has come to reflect racialized forms of life among South Africans (Bowker and Star 2000). We contend that the disenfranchisement based on racial classification should predispose minorities to greater psychological upset (Kagee and Price 1995; Straker 1987). Therefore, we hypothesize that:

H1a: All non-whites will report higher levels of psychological distress than white South Africans.

H1b: Africans will report the greatest disparity in psychological distress compared to white South Africans, followed by Coloreds and then Indians.

Resource Inequality in South Africa

Some scholars mark the Apartheid era back to the 1913 Land Act when the British colonial government set aside 13 percent of South Africa's land area for approximately 75 percent of the population who had been classified as African (Bundy 1979). Land ownership and the ability to live in certain areas of the country were highly restricted for Africans. Others emphasize the next series of laws passed after the 1948 election (by the National Party), where all South Africans were assigned at birth to a racial category, segregation in all areas of everyday life was formally institutionalized, and the legal and political rights of each citizen were directly tied to racial status (Christopher 1992; Khalfani and Zuberi 2001). As a result, a caste system emerged based on these clearly designated rankings:

> [Those] classified as African were the worst affected by the Apartheid government's urban policy. Not only were they settled in the most

> poorly serviced and peripheral townships in the urban areas, but they were subject to a systematic endeavor to prevent their urbanization. (Morris 1999:667)

Many Africans continue to live on the outskirts of urban areas—the least developed sections of the city.

Apartheid officially ended in 1994, but its legacy is evident in the marked racial stratification in South African occupational (Statistics South Africa 2004; Vahed 2001) and educational systems (Buchmann and Hannum 2001). In fact, until 1994, non-white South Africans could neither hold prestigious jobs nor reside in certain urban neighborhoods unless they were domestic servants (Giliomee 1995; Morris 1999). These provisions excluded many from full participation in the labor market. There still exists a deeply segmented work force with whites at one extreme, Africans at the other, and all other groups in the middle (Vahed 2001). The unemployment rate in South Africa also falls along a color continuum. In 2001, 50 percent of Africans, 20 percent of Coloreds, 17 percent of Indians, and 6 percent of whites were unemployed (Statistics South Africa 2004). The structural resource of education is also unequally distributed across the population, with Africans having less access to formal schooling than any other racial group (Buchmann and Hannum 2001).

Socioeconomic status (SES) soon became confounded with race in South Africa. For example, the informal settlements in urban areas where many Africans were confined typically lacked electricity and running water. A lack of electricity makes it difficult to use convenient household items such as refrigerators and stoves. Low access to these natural resources has been linked to negative health behaviors and poor physical health outcomes among Africans (Mfenyana et al. 2006). Building on this work, we take these culturally salient material resources into account in this study on mental health.

Kagee and Price (1995) argued that psychological suffering among South Africans has social, economic, and political roots. Thus, the most disadvantaged racial groups in any society are expected to report higher distress levels than those from the majority groups (or those along the continuum of race) primarily due to a lack of socioeconomic resources. Mirowsky and Ross (1980) propose that race differences in psychological distress may actually be explained by SES disparities as well as exposure to prejudice and discrimination; they refer to this view as the minority status perspective. We describe our hypotheses regarding the association between race and psychological distress as they relate to the minority status perspective.

There are two dimensions to the minority status perspective. According to some, taking into consideration SES (especially education and income) should attenuate racial differences in distress between groups. Others contend that racial status may continue to exert a negative influence on psychological well-being due to differential exposure to prejudice and discrimination. The first dimension of the minority status hypothesis has found some support in the literature where the race effect is either eliminated (Wu et al. 2003) or highly attenuated (Cooper 1993) when SES is taken into account.[2] Others continue to find race differences in psychological distress after controlling for SES (Turner and Avison 2003). We hypothesize that:

> *H2:* The greatest disparity in distress will be found between Africans and whites, even after controlling for SES.

Social Stress Model

Much research has documented the relationship between stress exposure and subsequent mental health problems (George and Lynch 2003). Most work has been generated using the social stress model that includes the sources of stress (stressors), mediators of stress, and the outcomes of stress (Pearlin 1989). We briefly discuss each component of the social stress model as it relates to the theoretical model examined in this study.

An important area of stress research focuses on life events as sources of stress that may ultimately impact psychological well-being. Life events are typically defined as discrete occurrences that require major life readjustment (Wheaton 1999). There is growing evidence of the positive association between undesirable life events and psychological distress across a variety of countries including some in Asia (Tafarodi and Smith 2001), Australia (Savery and Wooden 1994), Europe (Dalgard, Bjork, and Tambs 1995), the Middle East (Bem-Zur 2005), and North America (Lantz et al. 2005). We build on this international body of work by considering the relationship between undesirable life events and psychological distress in South Africa. Consistent with this research, we expect to find that:

H3: The higher the number of undesirable life events, the greater the levels of psychological distress.

Even though Ross and Mirowsky (1980) initially described exposure to discrimination as a component of the minority status perspective, it was in later work that scholars demonstrated a relationship between perceived discrimination and mental health (see Williams et al. 1997 for a review). The type of discrimination of interest in this study is reports of unfair treatment. We suspect that when members of disenfranchised racial groups in South Africa report unfair treatment (whether perpetrated by individuals or institutions) it will have a similar effect on their mental health as it does adults in the United States (Kessler, Mickelson, and Williams 1999). Hence, our fourth hypothesis:

H4: The higher the number of experiences of unfair treatment, the greater the levels of psychological distress.

There is some initial evidence in the United States that black-white differences in psychological distress are explained when unfair treatment due to race is taken into consideration (Taylor and Turner 2002). This pattern of findings provides some support to the second dimension of the minority status hypothesis. However, we believe that general experiences of life stress, as captured in undesirable life events and reports of unfair treatment, are embedded in the racial order of South Africa. That is, these stressful experiences "…can be traced back to surrounding social structures and people's locations within them" (Pearlin 1989:242). It is this structural context of the stress process which creates an exciting venue for research on adults in South Africa. In other words, it may be impossible to capture the entire "stress universe" amongst a people exposed to the stress of apartheid. Nonetheless, we hypothesize that our measures of stress will alter the relationship between race and psychological distress:

H5: The association between race and psychological distress will be attenuated when undesirable life events and perceptions of unfair treatment are included in the equations.

The other crucial component of the social stress model considers the role of psychological resources such as global self-esteem and mastery (Ensel and Lin 1991; House 2001). Global self-esteem refers to "the individual's positive or negative attitude toward the self as a totality" (Rosenberg et al. 1995:141). Mastery refers to feelings of power (or powerlessness) or the sense that the individual can (or cannot) control his external environment (Pearlin et al. 1981). In general, adults with a strong sense of self (or who have a high regard for themselves) and who feel that they can master their external environment report better mental health outcomes than their counterparts (Ellison et al. 2001).

In an application of the stress process model among a sample of Korean immigrants living in Toronto, Canada, for example, Noh and Avison (1996) found that stressors (measured along the dimensions of life events and chronic strains) increase symptoms of depression. While these scholars reported little evidence that psychological resources mediate the impact of previous stress exposure, both resources have a direct effect on levels of depression, with those high in these personal resources reporting a reduction in symptoms. Thus, Noh and Avison (1996) tested one version of the stress process model (the coping model where resources act as mediators between stress exposure and subsequent psychological distress) but found evidence for another (the deterring model where psychological resources have an independent effect on psychological distress).

The distress-deterring approach is one where scholars argue that psychological resources "…allow the individual to uphold self-identity and -esteem and maintain identification" (Ensel and Lin 1991:323). We believe it is this model that is most appropriate for a study among South Africans, since a series of disruptive and devastating colonial experiences challenged the integrity of African identities (Abdi 1999). Positive feelings of self-worth are often undermined when groups are forced to internalize the culture of the most powerful group (Chege 1997) and it becomes difficult to garner a sense of mastery under colonial rule (Winant 2000). We therefore hypothesize the following:

H6a: Self-esteem will be negatively associated with psychological distress.
H6b: Mastery will be negatively associated with psychological distress.
H6c: The relationship between race and psychological distress will be partially reduced when self-esteem and mastery are taken into account.

The final component of the social stress model is the outcomes of stress. Scholars concur that there are many reasons to consider multiple outcomes in the study of social stress (see Aneshensel 2005). First, studies that emphasize group differences in a single outcome can overestimate the impact of various factors when viewed in isolation of other outcomes. Second, there are a myriad of ways in which the consequences of social arrangements may impact the lives of people. This is an important theoretical issue given the assumption underlying the social stress model which states that, "social organization is associated with a broad spectrum of potential mental health outcomes and is not linked to a single disorder to the exclusion of others" (Aneshensel 2005:223). We include two indicators of psychological distress that are general responses to stress: (1) nonspecific distress (NSD) and (2) feelings of anger. Nonspecific distress captures a variety of mental health problems (Kessler et al. 2002) and has been adopted across a wide array of studies in the field of mental health (e.g., see Burton 1998). We make brief comment on the study of anger rather than reiterating previous justifications for NSD as a legitimate indicator of mental health.

Many social psychologists view anger as an emotional reaction rather than a mood state. Hostility is the label generally adopted by stress investigators interested in this type of emotional state (Rosenfield 1980). We adopt the term anger/hostility to represent both the emotion and the hostile behaviors that this emotion can evoke. Anger is especially important to consider in this study of adults living in post-Apartheid South Africa, since such feelings may be the critical link between structural strain and deviant behavior, including aggressive and hostile acts (Agnew 1995). Thus, this article speaks to the insightful discussion among some mental health scholars regarding the differential manifestation of psychiatric disorder across groups.

In essence, we believe that this study contributes to the theory of social stress by subjecting components of the minority status, stress exposure, and distress-deterring approaches to empirical testing across international boundaries. The South African case, in fact, will underscore the importance of exploring these general propositions in different historical and sociopolitical contexts rather than assuming a global experience. By adopting the stress process model, we are also positioned to speak to the ongoing discussion of the role of resources (i.e., economic and psychological) in explaining psychological distress among adults as well as the importance of exploring how these factors are associated with different mental health outcomes. This is a timely effort given that a systematic study of the psychological impact of stress among South Africans is woefully absent.

Using the best available data from South Africa, this article will initially establish whether there is a relationship between race and psychological distress, and whether the SES dimension of the minority status hypothesis can be ruled out as an explanation of a race-distress relationship. From there, we will answer three questions: (1) Does consideration for certain forms of social stress partially (or completely) account for the race-distress relationship? (2) Do psychological resources have an independent effect on psychological distress? And (3) is the race-distress relationship the same for NSD and anger/hostility?

DATA AND MEASURES

Data

Data for this project derive from the South African Stress and Health Study, a large psychiatric epidemiological survey conducted between January 2002 and June 2004 in South Africa (Williams et al. 2004). The primary goal of the South African Stress and Health Study was to measure the prevalence of mental health problems in a nationally representative sample of adults aged 18 and older. The instrument includes information on generalized distress, anger/hostility, the prevalence of and exposure to multiple stressors, psychological and psychosocial resources, and a broad range of demographic variables. The data are representative of the population of noninstitutionalized adults in South Africa (i.e., those not in prisons, hospitals, mental institutions, or on military bases). The data are weighted according to the South African census (see Williams et al. 2004 for sampling details). The sample for this study began with 4,351 South Africans, but was reduced by 14.64 percent after the deletion of missing cases ($n = 3{,}714$). The final sample is composed of approximately 75 percent Africans ($n = 2{,}788$), 14 percent Coloreds ($n = 508$), 7 percent whites ($n = 278$), and 4 percent Indians ($n = 140$).

Dependent Measures

The dependent variable for these analyses is psychological distress. We measured this concept in

two ways that capture negative affective states (Kessler et al. 2002). First, we utilize a 30-day symptoms nonspecific distress (NSD) scale which consists of ten items. Respondents were asked, "In the past 30 days, how often did you feel": (1) "nervous"; (2) "that nothing could calm you down"; (3) "hopeless"; (4) "restless or fidgety"; (5) "so restless that you could not sit still"; (6) "depressed"; (7) "that everything was an effort"; (8) "so sad that nothing could cheer you up"; (9) "worthless"; (10) "tired out for no good reason?" Second, we measured anger/hostility by asking respondents to reflect on the past 30 days and note how often they (1) "were irritable or grumpy"; (2) "were mad or angry"; (3) "were so angry that they felt out of control"; (4) "had an urge to hit, push, or hurt someone"; (5) "had an urge to break or smash something." Response categories for both subscales were: (1) "all the time," (2) "most of the time," (3) "some of the time," (4) "a little," or (5) "none of the time." All items were reverse coded and then added together to represent NSD (alpha = .88) and anger/hostility (alpha = .82), respectively.

Independent Measures

Race is the primary predictor variable. Respondents were asked, "what is your racial background?" A single dummy variable was created to represent race in the bivariate analysis, with Whites as the reference group (coded "0"), compared to non-whites (coded "1"). For the multivariate models, we created three dummy variables comparing Africans (coded "0"), Coloreds (coded "0"), and Indians (coded "0") to whites (coded "1").

Four measures of SES were assessed. Education is measured in five categories (1 = "no formal education," 2 = "grade 1–7," 3 = "some secondary grade 8–11," 4 = "completed secondary grade 12," 5 = "grade university 13 and higher"). Family/household income is measured in thousands of rand. Employment status is a dummy coded "1" if employed and "0" if unemployed. An additional SES indicator adopted in this study is a count of material resources which included seven household appliances (fridge or freezer, polisher or vacuum cleaner, television, HI-FI or music center, microwave oven, washing machine, and VCR), seven household resources owned by the respondent (running water, flush toilet, built-in kitchen sink, electric stove or hot plate, working telephone, domestic servant, and automobile), and three market activities engaged by the respondent (shopping at supermarkets; use of financial services such as a bank account, ATM card or credit card; and having an account or credit card at a retail store). The alpha for this scale of material resources was .92.

Sources of stress are indicated by the number of undesirable life events and perceptions of unfair treatment. Undesirable life events were assessed by asking respondents if certain events had occurred to them in the past 12 months.[3] The time frame adopted for recall of life events is consistent with the broader literature and is based on retrospective case-control studies indicating that the potential for life events to induce clinical disorders subsides after 12 months (Surtees and Ingham 1980). The following items were included on the list: (1) a serious illness or injury; (2) being the victim of a serious physical attack or assault; (3) being robbed or having one's home burglarized; (4) the death of anyone close; (5) a separation from spouse or partner because of marital difficulties; (6) the breakup of any other close relationship; (7) forced retirement from a job; (8) loss of job for some other reason; (9) unsuccessfully searching for a new job for more than one month; (10) a major financial crisis; (11) problems with the police; and (12) having someone very close have a serious illness, injury, physical attack, or assault. Responses for each item were coded "0" if no and "1" if yes, and we summed these items to form an index of undesirable life events.

The measure of perceptions of unfair treatment is an index that counts the occurrence of as many as nine situations where each item is coded "1" if it has occurred and "0" if it has not occurred (Kessler et al. 1999). Respondents were asked if they had *ever* been: "unfairly fired at any time in your life; denied a promotion; stopped, searched, questioned, physically threatened, or abused by the police; discouraged by a teacher or advisor from continuing your education; denied a bank loan; prevented from moving into a neighborhood." Respondents were also asked if they had *ever* "moved into a neighborhood where neighbors made life difficult for you; received service from someone that was worse than what other people received"; and if, "for unfair reasons, have you ever not been hired for a job?" We combined the scored responses from these nine items to form an index of perceived unfair treatment.

Measures of self-esteem and mastery are included as psychological resources. Self-esteem is operationalized using four items taken from Rosenberg's (1965) self-esteem scale. Respondents were asked their level of agreement (1 = "strongly agree" to 4 = "strongly disagree") to the

following items: (1) "I take a positive (good) attitude toward myself"; (2) "On the whole, I am satisfied with myself"; (3) "I certainly feel useless at times"; (4) "At times I think I am no good at all." The first two items were reverse coded to represent high self-esteem. All items were then summed to form a self-esteem scale (alpha = .58). Mastery is composed of four items taken from Pearlin and Schooler's (1978) mastery scale. Respondents were asked their level of agreement (1 = "strongly agree" to 4 = "strongly disagree") with the following items: (1) "There is really no way I can solve some of the problems I have"; (2) "I have little control over the things that happen to me"; (3) "I often feel helpless in dealing with the problems of life"; (4) "There is little I can do to change many of the important things in my life." Together, the items formed a mastery scale (alpha = .82).

Control Measures

Several sociodemographic characteristics known to be related to psychological distress were assessed (Eaton et al. 2001; Ellison et al. 2001; Roxburgh 2004; Williams 2003). Included in this study are age (measured in years), gender (0 = male, 1 = female), marital status (0 = previously or never married, 1 = married), and urban/rural residence (0 = rural, 1 = urban).

Analytic Strategy

OLS regression in Stata™ was used to analyze the data. Here, we estimate a series of equations and enter sets of covariates in stages. The results from each of these equations are presented in the text. We discuss only coefficients significant at or below the .05 level ($p \leq .05$). Table 1 provides descriptive statistics for the sample, while Tables 2 and 3 summarize the results from the multivariate analyses.

RESULTS

Descriptive Information

Table 1 presents a simple summary of the characteristics of the sample and the descriptive statistics of the measures (unweighted). To launch our investigation of the relationship between race and psychological distress, we briefly report the significant differences between whites and non-whites on the primary independent and dependent variables.

As expected, there is a statistically significant pattern in the distribution of SES resources: Africans, Coloreds, and Indians report lower levels of education and fewer material resources than do whites; and Africans and Coloreds report lower levels of income than do whites. Indians have higher levels of income when compared to whites (Zeng and Xie 2004). All non-whites are less likely to be employed when compared to whites. Africans, Coloreds, and Indians report fewer material resources when compared to their white peers. In fact, white South Africans have at least twice as many material resources as Africans. These findings are consistent with general patterns of resource inequality in South Africa (Statistics South Africa 2004).

When considering stress exposure, the three non-white groups experience more undesirable life events when compared to whites. Only Africans and Indians report significantly more instances of unfair treatment than whites. In terms of psychological resources, Africans, Coloreds, and Indians have lower levels of self-esteem and mastery when compared to whites. This pattern is quite distinct from U.S. data which consistently show higher levels of self-esteem but lower levels of mastery among African Americans when compared to whites (Ross and Sastry 1999; Twenge and Crocker 2002). Finally, the average psychological distress (NSD and anger/hostility) scores for Africans, Coloreds, and Indians are significantly higher than scores reported by whites.

Multivariate Models

Race and nonspecific distress (NSD). Table 2 demonstrates the extent to which the association between race and psychological distress is due to each set of factors identified within the social stress model. Consistent with hypothesis 1a, results indicate that all racial minorities report higher levels of NSD than whites, adjusting for the control variables (see model 1). Africans report the highest levels of NSD (beta = 4.32, $p < .001$), followed by Coloreds (beta = 2.57, $p < .001$), and then Indians (beta = 1.86, $p < .05$), lending support to hypothesis 1b.

In model 2, we add the set of socioeconomic variables and find partial support for the minority status hypothesis. First, there is a significant reduction in the African-white coefficient predicting NSD (by 42 percent when comparing model 1 to model 2), although this race difference remains statistically significant (beta = 2.49, $p < .001$; also

Table 1. Descriptive Statistics for All Predictor and Outcome Variables for Full Sample and across Race

	All (*N* = 3,714)	African[a] (*N* = 2,788)	Colored[a] (*N* = 508)	Indian[a] (*N* = 140)	White (*N* = 278)
Control variables					
Age	37.20	36.36***	39.68	35.83***	41.84
	(14.64)	(14.48)	(14.37)	(12.58)	(16.25)
Female	.60	.60	.61	.63	.56
	(.49)	(.49)	(.49)	(.48)	(.50)
Married	.49	.47***	.51**	.66	.61
	(.50)	(.50)	(.50)	(.48)	(.49)
Urban	.58	.49***	.78***	.99***	.90
	(.49)	(.50)	(.42)	(.12)	(.31)
Socioeconomic variables					
Education	3.16	3.01***	3.17***	3.91***	4.21
	(1.15)	(1.12)	(1.08)	(.99)	(.85)
Household income	5.47	4.65***	5.67***	12.70	9.69
	(12.41)	(10.81)	(9.27)	(33.86)	(10.35)
Employed	.31	.28***	.36***	.34***	.52
	(.46)	(.45)	(.48)	(.48)	(9.50)
Material resources	7.63	5.99***	10.60***	13.79***	15.52
	(5.11)	(4.27)	(4.33)	(2.66)	(2.04)
Stressors					
Life events	1.55	1.74***	1.11***	1.15***	.67
	(1.75)	(1.80)	(1.54)	(1.44)	(1.15)
Unfair treatment	.29	.30	.29***	.40	.22
	(.72)	(.71)	(.81)	(.90)	(.60)
Psychological resources					
Self-esteem	12.51	12.33***	12.72***	12.81***	13.77
	(2.60)	(2.59)	(2.53)	(2.32)	(2.60)
Mastery	10.51	10.13***	11.11***	11.17***	12.89
	(3.65)	(3.59)	(3.63)	(3.31)	(3.29)
Dependent variables					
Nonspecific distress	15.51	16.12***	14.51***	13.86**	11.99
	(8.48)	(8.61)	(8.66)	(7.10)	(6.03)
Anger/hostility	6.49	6.56***	6.70***	6.24*	5.54
	(3.76)	(3.80)	(4.06)	(3.42)	(2.57)

*$p < .05$. ** $p < .01$. *** $p < .001$.
Note: Numbers in parentheses are standard deviations.
Source: South African Stress and Health Study.
[a]Compared to Whites.

see Taylor and Turner 2002). Second, there is no longer a significant difference in NSD between whites and other ethnic minorities (Coloreds or Indians) when we include controls for SES. This suggests that differences in NSD between *some* South Africans can be explained by the availability of socioeconomic resources as evidenced among some U.S. blacks (see Mirowsky and Ross 1980).

In the next set of models, we introduce social stressors to determine if any remaining race differences in NSD are explained by differential exposure to stress (models 3a–3c). Here, we find a further reduction in the African-white coefficient predicting nonspecific distress. Part of the effect of race in model 2 reflects the deleterious impact of undesirable life events (61 percent reduction in African-white coefficient when comparing model 2 to model 3a) and perceptions of unfair treatment (27 percent reduction in African-white coefficient when comparing model 2 to model 3b). Differential exposure to perceptions of unfair treatment (model 3b) does not fully explain the African-white differences in NSD. Nonetheless, when both forms of life stress are included in the model, African-white differences in NSD are no longer statistically significant (see model 3c). Undesirable life events and perceptions

Table 2. The Estimated Effects of Race on Nonspecific Distress: The South African Stress and Health Study (N = 3,714)

	Minority Status Hypothesis		Stress Exposure Hypothesis			Distress-Deterring Approach		
	Model 1	Model 2	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c
Race[a]								
African	4.32***	2.49***	.95	1.81**	.80	.69	.45	.49
	(.54)	(.62)	(.59)	(.60)	(.58)	(.57)	(.57)	(.56)
Colored	2.57***	.96	.64	.80	.49	.31	.23	.18
	(.63)	(.67)	(.61)	(.63)	(.61)	(.59)	(.60)	(.59)
Indian	1.86*	.99	.58	.68	.32	−.08	−.29	−.38
	(.87)	(.96)	(.82)	(.85)	(.82)	(.80)	(.80)	(.79)
Control variables								
Age	.02	−.00	−.00	−.01	−.01	−.01	−.01	−.01
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Female[b]	1.55***	1.42***	1.43***	1.66***	1.64***	1.42***	1.35***	1.28***
	(.28)	(.28)	(.27)	(.28)	(.27)	(.26)	(.26)	(.26)
Married[c]	.47	.21	.57*	.48	.51	.50	.53*	.52*
	(.29)	(.29)	(.28)	(.29)	(.27)	(.27)	(.27)	(.26)
Urban[d]	.18	.12	.51	.64*	.41	.25	.47	.34
	(.29)	(.32)	(.30)	(.31)	(.29)	(.29)	(.29)	(.28)
Socioeconomic variables								
Education		−.76***	−.71***	−.73***	−.71***	−.51***	−.48**	−.41**
		(.16)	(.15)	(.16)	(.15)	(.15)	(.15)	(.15)
Household income		−.00	−.01	−.02	−.01	−.01	−.01	−.01
		(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Employed[e]		−.64*	−.07	−.75*	−.21	−.06	−.13	−.05
		(.32)	(.30)	(.31)	(.30)	(.29)	(.29)	(.29)
Material resources		−.08	−.09*	−.13**	−.10*	−.04	−.04	−.02
		(.04)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)
Stressors								
Life events			1.55***		1.40***	1.26***	1.25***	1.20***
			(.08)		(.08)	(.08)	(.08)	(.08)
Unfair treatment				2.28***	1.47***	1.35***	1.39***	1.33***
				(.19)	(.18)	(.18)	(.18)	(.18)

(continued)

Table 2. (continued)

	Minority Status Hypothesis		Stress Exposure Hypothesis			Distress-Deterring Approach		
	Model 1	Model 2	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c
Psychological resources								
Self-esteem						−.69***		−.49***
						(.05)		(.06)
Mastery							−.49***	−.34***
							(.04)	(.04)
Constant	8.31***	14.30***	12.66***	14.15***	12.58***	21.01***	17.62***	22.04***
	(.83)	(1.12)	(1.08)	(1.11)	(1.07)	(1.21)	(1.11)	(1.21)
Adjusted R^2	.029	.047	.142	.083	.156	.197	.195	.212

*$p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

Note: Numbers in parentheses are standard errors. All data are weighted. Unstandardized coefficients shown.

[a]Whites comprise the reference group.

[b]Males comprise the reference group.

[c]Previously and never married comprise the reference group.

[d]Rural dwellers comprise the reference group.

[e]Unemployed comprise the reference group.

Table 3. The Estimated Effects of Race on Anger/Hostility: The South African Stress and Health Study (N = 3,714)

	Minority Status Hypothesis		Stress Exposure Hypothesis			Distress-Deterring Approach		
	Model 1	Model 2	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c
Race[a]								
African	1.16***	.88**	.42	.68*	.34	.30	.24	.25
	(.24)	(.28)	(.27)	(.27)	(.27)	(.26)	(.26)	(.26)
Colored	1.21***	.96***	.80**	.83**	.72**	.66*	.65*	.63*
	(.28)	(.29)	(.28)	(.29)	(.28)	(.28)	(.28)	(.28)
Indian	.55	.44	.23	.21	.09	−.05	−.08	−.12
	(.39)	(.39)	(.38)	(.38)	(.38)	(.37)	(.37)	(.37)
Control variables								
Age	−.01**	−.02***	−.02***	−.02***	−.02***	−.02***	−.02***	−.02***
	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
Female[b]	.40**	.37**	.41***	.53***	.53***	.45***	.44***	.42***
	(.13)	(.13)	(.12)	(.13)	(.12)	(.12)	(.12)	(.12)
Married[c]	.29*	.28*	.28*	.24	.25*	.25*	.26*	.25*
	(.13)	(.13)	(.13)	(.13)	(.13)	(.12)	(.12)	(.12)
Urban[d]	.48***	.56***	.43**	.46***	.38**	.33*	.40**	.35**
	(.13)	(.14)	(.14)	(.14)	(.13)	(.13)	(.13)	(.13)
Socioeconomic variables								
Education		−.21**	−.20**	−.21**	−.20**	−.13	−.13	−.11
		(.07)	(.07)	(.07)	(.07)	(.07)	(.07)	(.07)
Household income		−.00	.00	−.00	.00	.00	.00	.00
		(.01)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
Employed[e]		−.06	.14	−.11	.07	.12	.09	.12
		(.14)	(.14)	(.14)	(.14)	(.14)	(.14)	(.14)
Material resources		−.00	.01	−.01	.00	.02	.02	.03
		(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Stressors								
Life events			.55***		.47***	.42***	.43***	.41***
			(.03)		(.04)	(.04)	(.04)	(.04)
Unfair treatment				1.04***	.77***	.73***	.74***	.72***
				(.08)	(.08)	(.08)	(.08)	(.08)

(continued)

Table 3. (continued)

	Minority Status Hypothesis		Stress Exposure Hypothesis			Distress-Deterring Approach		
	Model 1	Model 2	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c
Psychological resources								
Self-esteem						−.24***		−.19***
						(.02)		(.03)
Mastery							−.14***	−.08***
							(.02)	(.02)
Constant	4.78***	5.99***	5.32***	5.81***	5.28***	8.18***	6.74***	8.44***
	(.37)	(.51)	(.50)	(.50)	(.49)	(.56)	(.52)	(.56)
Adjusted R^2	.012	.014	.075	.053	.095	.120	.112	.124

*$p < .05$. ** $p < .01$. *** $p < .001$ (two tailed).

Note: Numbers in parentheses are standard errors. All data are weighted. Unstandardized coefficients shown.

[a]Whites comprise the reference group.

[b]Males comprise the reference group.

[c]Previously and never married comprise the reference group.

[d]Rural dwellers comprise the reference group.

[e]Unemployed comprise the reference group.

of unfair treatment are associated with high NSD as hypothesized (hypotheses 3, 4, and 5).

Model 4 (a–c) includes measures of psychological resources to estimate their relative influence on nonspecific distress. Because race differences in NSD were explained by exposure to life stress, there is no statistically relevant change in the race coefficients. Nonetheless, there is a 6 percent increase in the amount of variance explained in NSD when self-esteem (model 4a) and mastery (model 4b) are added to the equation; and a 6 percent increase in explained variance when both psychological resources are included in the final model (model 4c). As proposed by the distress-deterring model, high self-esteem (beta = –.69, $p < .001$) and mastery (beta = –.49, $p < .001$) are associated with lower levels of NSD (hypothesis 6a and 6b).

In terms of the control variables, we find a pattern somewhat consistent with U.S. data. Women report higher levels of NSD than men, while those with high levels of education report lower levels of nonspecific distress. Surprisingly, married respondents have higher levels of NSD when compared to the unmarried;[4] and an overall lack of material resources is not consistently associated with NSD when life events and unfair treatment are taken into account.[5]

Race and anger/hostility. Table 3 presents unstandardized OLS coefficients for the models predicting anger/hostility. As shown in model 1, the African-white and Colored-white coefficients (beta = 1.16 and 11.21, $p < .001$, respectively) are statistically significant, while there is no difference in reports of anger/hostility between Indians and whites when adjusting for the covariates. Thus, we find partial support for the hypothesis that non-whites would report higher levels of anger/hostility than whites (hypothesis 1a). We find slight variations in the race coefficient when we compare the differentials of Africans to whites and Coloreds to whites. This finding offers limited support for hypothesis 1b (model 1), where we expected to find the most notable disparity between Africans and whites.

Model 2 offers a test of the minority status hypothesis as it relates to the socioeconomic dimension of this perspective. As evident here, previously noted race differences in anger/hostility remain even when we include measures of SES (see model 2). That is, Africans (beta = .88, $p < .001$) and Coloreds (beta = .96, $p < .001$) report higher levels of anger/hostility compared to whites even after we take into account SES. Nonetheless, there is a significant decrease in the coefficients associated with African and Colored race (24 percent and 20 percent, respectively) with the addition of SES in model 2; thus, we find support for this component of the minority status hypothesis in regards to anger/hostility.

There is confirmation for hypotheses 3 and 4 where undesirable life events (model 3a) and perceptions of unfair treatment (model 3b) are associated with higher levels of anger/hostility. We also find in model 3a that when undesirable life events are taken into account, the African-white coefficient is no longer statistically significant. Colored adults, however, remain more angry/hostile than whites (beta = .80, $p < .01$), regardless of the level of exposure to undesirable life events. There is a 16 percent reduction in the Colored-white coefficient when undesirable life events are included in the model.

Model 3b demonstrates that consideration for unfair treatment does little to explain African-white differences in anger/hostility, since this coefficient now reaches statistical significance (beta = .68, $p < .01$). At the same time, there is a reduction in the impact of African race on anger/hostility when these stressors are included in the model (a 22 percent reduction from model 2 to model 3b). The coefficient representing differences in levels of anger/hostility between Coloreds and whites remains statistically significant (beta = .83, $p < .001$; 13 percent reduction in the effect of Colored race from model 2 to model 3b) when the variable assessing unfair treatment is included in the regression model. When both forms of life stress are included in the model predicting anger/hostility, Coloreds remain more angry/hostile than whites (model 3c: beta = .72, $p < .01$; 25 percent reduction in the effect of Colored race from model 2 to model 3c). Thus, we find support for hypothesis 5 (which states that the race-distress relationship would be attenuated by stressors) as it pertains to Africans but not the variable assessing Coloreds.

In the full model, we include the psychological resource variables (distress-deterring approach). As shown in models 4a through 4c, a consideration of levels of self-esteem (model 4a) and mastery (model 4b) does little to reduce differences in anger/hostility between Coloreds and whites (8 percent and 9 percent, respectively when comparing model 3c to models 4a and 4b). There is, however, a 12 percent reduction in the Colored-white coefficient when the psychological resources are considered simultaneously (model 4c: beta = .63, $p < .05$). The comparable impact of these resources is also evident in the amount of variance they help

to explain in the final model. There is a similar, but small, increase in the amount of explained variance in feelings of anger/hostility when self-esteem (model 4a: 9 percent) and mastery (model 4b: 8 percent) are included in the equation, and only a slightly higher percentage when both are considered simultaneously as important psychological resources (model 4c: 9 percent). As proposed by the distress-deterring model, these resources have independent effects on anger/hostility so that those with high levels of self-esteem (hypothesis 6a) and mastery (hypothesis 6b) report lower levels of anger/hostility.

We also see in this full model (model 4c) that certain sociodemographic characteristics are associated with feelings of anger/hostility.[6] Many of these findings are consistent with patterns found among U.S. adults. For example, older South Africans are less angry/hostile than their younger peers (Mirowsky and Ross 1999; Schieman 1999), while women report higher levels of anger/hostility than men (Ross and Van Willigen 1996). Similar to the NSD findings, married South Africans are more angry/hostile than the unmarried.[7] Additionally, those who live in urban areas report higher levels of anger/hostility than those in rural areas (Kessler et al. 1994).

Summary of Findings

There are significant differences in reports of psychological distress between Africans and whites. While SES resources do not fully account for these differences, exposure to undesirable life events (rather than perceptions of unfair treatment) helps explain this initial mental health disparity. On the contrary, Coloreds in comparison to whites have poor mental health until one takes into account SES, with the caveat that SES helps explain initial differences in NSD but not anger/hostility. In fact, differences in anger/hostility are never fully explained by our version of the social stress model. Like Coloreds, Indian-white differences in NSD are not significant once SES is taken into account. Unlike the findings for Coloreds, however, there are no initial Indian-white differences in anger/hostility in the multivariate model. In essence, the mental health of the racial groups in South Africa appear to reflect the historical and current-day circumstance of resource allocation and the challenges of everyday life: Africans reap fewer benefits from their SES status and face the challenges of many negative life events (twice as many as whites); Coloreds may be fighting for "named" (e.g., education) as well as "unnamed" (e.g., acceptance, political power) resources; Indians appear to have achieved equal status with whites, at least in terms of income parity. While clearly important for positive mental health, psychological resources are making little difference in the unfolding of this "racialized" life story.

DISCUSSION

While South Africa has historically represented a unique system of oppression, a substantial body of stress research demonstrates that the conditions affecting people in inequitable positions are often translated into a series of foreseeable stressors that result in psychological distress among all who are exposed to stress (see Pearlin 1989). Using recently collected data on a large, representative sample of adults from South Africa, we find persistent mental health disparities. The results found in this study suggest that eradicating racial disparities in mental health among South Africans will require a multifaceted approach.

First, fewer differences were found in psychological distress between Indians and whites even though Indians have experienced racism much like their African counterparts. For example, Indians were forcibly moved into Indian townships, their movements were restricted, and state policy dictated that Indians receive an inferior education compared to white South Africans (Hart and Padayachee 2000). Indians living in South Africa, however, have since achieved high socioeconomic status. Thus, this particular set of findings highlights the importance of distinguishing between racial-ethnic status (e.g., non-white) and minority status. The term "minority group" is specifically used by many race scholars to refer to groups who have been denied equal access to valued resources, regardless of numerical representation in the population (Schaefer 1993). An interesting question to pursue in this regard is the extent to which Indians (who are typically designated as part of a minority group) consider themselves to be part of a racial-ethnic minority in South Africa. As it stands, this study assumes that all non-whites were (and continue to be) equally disenfranchised by apartheid (see Subreenduth 2003).

Second, those South Africans who classify themselves as Coloreds are significantly more angry/hostile than whites. In fact, when Coloreds

are compared to the other racial groups in the multivariate framework, they are more angry/hostile than all other groups of South Africans (data not shown). Perhaps the political history of South Africa's Colored population can help explain their higher levels of anger/hostility. More specifically, the majority of Colored people in South Africa supported the National Party in the 1994 election, despite the fact that this group was previously disenfranchised by the National Party (Khalfani and Zuberi 2001). These citizens may be torn between their allegiance to changes that would improve the lives of all South Africans and their expectation to have greater access to more resources given their support of the National Party.

These findings also re-emphasize the call by medical sociologists to incorporate multiple measures of mental health in studies of the stress process. Had we simply considered NSD as an outcome, we may have assumed that the stress process unfolds for Coloreds as it does for Indians with the primary difference from whites being an unequal distribution of SES resources. Instead, we raise yet another set of questions: Why are Coloreds so angry/hostile? To whom is this anger/hostility directed? And how does this anger/hostility get channeled? More broadly, we raise the possibility that Indians may very well have a different mental health profile from whites—we simply have not identified the measure that makes a distinction between these groups.

Third, the conditions of apartheid appear to have disintegrated the fabric of everyday life among Africans. Here we were intrigued with the role played by undesirable life events in explaining African-white differences in distress (compared to perceptions of being treated unfairly), since it is perceived discrimination that has been heretofore theorized to be the catalyst for this pattern (Mirowsky and Ross 1980; Williams et al. 2008). This study suggests that the minority status perspective should be elaborated to include the *differential distribution* of everyday life events—a position that has been advocated by other medical sociologists and supported by evidence from U.S. data (Turner and Avison 2003). Perhaps because apartheid has been such a large component of the lives of Africans, unfair treatment points toward that "fundamental cause" of racial disparities in mental health. Such disparities often result from persistent problems and daily hassles requiring constant readjustment. More large-scale, systematic research is needed to reveal the interrelationships among various life stressors and the ways in which Africans cope in this post-apartheid era. The South African Stress and Health Study holds much promise for moving forward research in the area of the social epidemiology of stress and mental disorders (e.g., see Seedat et al. 2009).

Finally, there are interesting connections with distress and several of the sociodemographic variables in our analysis. While it was not surprising that women are more distressed than men, we were struck by the robust relationship between urban living and anger/hostility. It is this area of inquiry that has not been fully elaborated in regards to the South African case. After controlling for a host of factors, urban dwellers continue to express significantly higher levels of anger/hostility. Bond (2004) writes quite extensively on the history of South African cities that may help explain this finding. He argues that the politics of apartheid were primarily played out on the urban landscape. There was much uneven development in most metropolitan areas where certain areas had low standards of infrastructure and poor access to urban services (the townships where many Africans reside). Where services have been established, they were soon privatized following the liberation movement. Many residents, therefore, still find it difficult to afford good service. Thus, urban status may very well be capturing yet another level of poverty, inequality, and exposure to environmental hazards in the outskirts of the cities of South Africa.

The difference between urban and rural dwellers in feelings of anger/hostility may also be related to the liberation of South Africa, which occurred in a series of urban social movements. Many of the large scale riots that occurred in the early 1990s took place in the urban centers. Mass demonstrations exposed all South Africans to the wide disparity in wealth as individuals were now free to march across highways that separated the rich from the poor. Bond (2004) contends that the unified urban mass includes the unemployed, young women, squatters, and indigenous peoples who participate in protest movements that go "beyond the wage issues toward enlarging the areas of freedom for people to act and realize their human dignity" (p. 12). Because the culture of the city is under continual transformation, all South Africans must adjust to the contemporary social landscape where urban spaces are being redefined. These new public spaces are now "marked by unpredictability, difference, and the incessant movement of anonymous bodies and signs" (Hansen 2006:185). The heightened anger/hostility among urban dwellers

might be present because of the uncertainty of living in urban space—an intriguing possibility that deserves attention in future work.

In essence, this study demonstrates that the social stress model is useful in understanding the mental health of adults living in South Africa. There are some notable patterns mentioned above that suggest South Africa is an exaggerated case rather than an exception. As such, we do not wish to overstate our findings. First, the psychological impact of life change (life events) is as modest in magnitude as previous U.S. studies suggest (see Thoits 1983). Second, this study did not take into consideration differentiation within these racial groups across class, religion, and language. We, therefore, cannot speak to the cultural complexity that characterizes South Africa. Third, this article investigated the determinants of two mental health outcomes. An obvious extension of this work is to consider other manifestations of distress since NSD and anger/hostility fall on a long and varied continuum of mental health. Our goal was to offer a glimpse of the stress process in the South African context. We believe the findings from this study point to several avenues for future research within South Africa and across international boundaries. The South African case highlights many of the theoretical nuances of the social stress model (as has developed over time); both remind us of the practical relevance of the study of stress.

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NOTES

1. We adopt these racial categories to distinguish among those considered "Black" in South Africa. Following the 1960's Black Consciousness Movement, the term *black* was widely adopted to refer to Africans, Coloreds, and Indians (see Subreenduth 2003).
2. Wu and colleagues (2003) find in their Canadian sample, however, that some racial minorities report better mental health than white Canadians, even after statistically controlling for socioeconomic position.
3. Events have been measured on multiple dimensions, with the "undesirable" nature of events being the most predictive of distress (Thoits 1983). We are not able to explore the various dimensions of life events in this study since only an assessment of their occurrence was assessed. The phrase "life events" is used interchangeably throughout the manuscript to also refer to undesirable life events.
4. Studies find that the married report lower levels of psychological distress than the formerly married (i.e., divorced, separated, widowed). The measure of marital status used here, however, combined the formerly married with the never married, making it impossible to ascertain actual differences between the unmarried groups.
5. When we estimated the final set of regression models separately for each group (model 4c), we found that only African and Colored women report higher NSD than their male counterparts. In terms of the measures of SES: (1) among whites, income and material resources are significant predictors of NSD; (2) among Africans and Coloreds, education significantly predicts NSD; and (3) among Indians/Asians, none of the SES measures was related to nonspecific distress. We also find that married whites have significantly higher NSD when compared to the unmarried.
6. When we estimated the final set of regression models separately for each group (model 4c), we find that African and Colored women report significantly higher levels of anger/hostility than their male counterparts. Africans who report more material resources report higher levels of anger/hostility than Africans with fewer of these resources. Indians who are married report higher levels of anger/hostility compared to unmarried Indians.
7. Similar to the findings for NSD, we cannot speak to this unexpected relationship.

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Bios

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