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THE "RACE" CONCEPT IN SMOKING: A REVIEW OF THE RESEARCH ON AFRICAN AMERICANS

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Abstract—This paper presents an analysis of the "race" concept as used by researchers who have studied the smoking behavior of African Americans. Most researchers in the field have failed to address the conceptual dimensions and meanings of "race" and accept uncritically the use of the term. This practice is viewed as an impediment in explaining inter- and intra-racial group differences and intervening effectively to reduce consumption of tobacco products. Adopting the majority–minority intergroup relations paradigm, the conceptual and practical meanings of "race" are reviewed by focusing on the history of relations between blacks and tobacco, conceptions of "race," "biology" and cigarette smoking, and the sociological nucleus (e.g. social class, racism and culture) of "race." Genetic or biologic assumptions and meanings of "race" in research on the smoking behavior of African Americans are critically examined. It is argued that "race" is a dynamic social construct reflecting societal transformations in relations between racially classified social groups (RCSGs). © 1997 Elsevier Science Ltd

Key words—race, smoking, African Americans, minority health

INTRODUCTION

One of the first English publications of the word "race" appears in a 1508 poem by William Dunbar entitled *The Dance of the Sevin Deidly Sins*. The word *racis* was used to refer to different groups of people (Banton, 1967). In another account, Montagu Ashley (1965) acknowledging the obscure etymology, attributes the first English usage to the *Book of Martyrs* by John Foxe in 1570.

Regardless of the origins, a good deal of recent scholarly discourse (Cooper, 1984; Wilkinson and King, 1987; Polednak, 1989; Hahn *et al.*, 1990; Osborne and Feit, 1992; Williams *et al.*, 1994; Senior and Bhopal, 1994; King and Williams, 1995) has been devoted to the theoretical formulations and methodological approaches regarding the meaning and significance of racially classified social groups (RCSGs) in health and medicine. Questions about the definition, taxonomy, measurement, value, metamorphosis and the utility of the "race" concept betray a preoccupation with the core dilemmas of "race" and racism in American society.

The conventional viewpoint in the social sciences is that "race" is essentially a social concept depicting a form of social stratification rather than a set of distinct group genetic predispositions or characteristics (Cooper, 1984; Wilkinson and King, 1987; Davis, 1991; Williams *et al.*, 1994; King and Williams, 1995). Putative meanings and assumptions about "race" are considered by most health researchers to be appropriate and practical representations of group genotypic and phenotypic characteristics, and to a lesser extent cultural patterns or affinities, population distributions, and other macro-sociological attributes.

Epidemiologic and behavioral research on cigarette smoking have clearly delineated sociodemographic variations and the prominence of "race" as a predictor or explanatory variable. Albeit a larger proportion of blacks smoke, compared to whites, they consume fewer cigarettes per day (CDC, 1994; Novotny *et al.*, 1988) and different brands (Kabat *et al.*, 1991); begin smoking at later ages or for fewer years (Cummings *et al.*, 1987; Novotny *et al.*, 1988; Headen *et al.*, 1991; Nelson *et al.*, 1995); smoke cigarettes higher in tar and nicotine (Bauman and Ennett, 1994); have lower quit rates (Fiore *et al.*, 1989; Wagenknecht *et al.*, 1990; Hatziandreu *et al.*, 1990); and are aggressively targeted by the tobacco industry (Cooper and Simmons, 1985; Blum, 1989; Mayberry and Price, 1993). Smoking among African Americans is disproportionately associated with a higher incidence of lung cancer, cardiovascular disease, low birth weight, and infant mortality (Garfinkel, 1984, 1991; USHHS, 1985; Sterling and Weinkam, 1989; Harris *et al.*, 1993).

The conceptual dimensions and meanings of "race" in smoking research have not been addressed sufficiently by current research paradigms or approaches and most researchers uncritically accept the use of the term. This practice is an impediment in explaining within and between social group differences and in intervening effectively to prevent and reduce the consumption of tobacco products.

In this paper, the focus is on two specific meanings of "race": (1) the biologic or genetic; and (2)

the sociological (specifically, social class, racism, and culture). Each of these dimensions provides an important means of understanding and assessing the validity of the "race" concept as employed in smoking behavioral and epidemiologic research. The principal theoretical paradigm informing this work is the majority–minority intergroup relations model which postulates a hierarchical form of social organization, social status, and interaction between dominant and subordinate "racial" and ethnic groups (Wirth, 1945; Frazier, 1947; Blauner, 1972; Omi and Winant, 1994; Essed, 1995). Also, critically discussed and reviewed are historical and structural forces, ideology, and forms of social inequality represented by the "race" concept in the smoking literature and in health and medicine generally.

A BRIEF HISTORY OF TOBACCO AND THE "RACE" CONCEPT

The social functions of tobacco among African Americans have evolved from their history, culture, social status, the political economy of the South (Kulikoff, 1986) and the dominant social doctrine about "race." Historically, blacks were regarded as inferior beings who were genetically endowed with limited intellectual abilities, physiologically suited to withstand the toils of agrarian production, and whose physical health could be explained by their distinct "racial" biology (Savitt, 1978; Krieger, 1987; McBride, 1989). Within the context of this ideology or dogma, tobacco use was not merely a recreational consumptive or livelihood but also helped to create and sustain the social organization (i.e. institution of slavery) that promoted the exploitation of Africans in the Western hemisphere (Jordan, 1968; Kulikoff, 1986).

Although historians do not agree exactly as to when tobacco was introduced to Africa, archaeological, ethnographic, linguistic, and botanical research suggest that the practice was post-Columbian (c. 1600) and was imported to West Africa by European colonists (Phillips, 1983). In eastern and southern Africa, smoking of cannabis in water pipes was widespread and the evidence indicates that it predated tobacco. Africans consumed tobacco by smoking, chewing, and dipping snuff and it had important ritual and ceremonial purposes. Moreover, because the introduction of tobacco to Africa preceded the greatest periods of the slave trade to the Americas, it is possible that some Africans were using and growing the substance prior to being forced to the New World.

On the other side of the Atlantic, tobacco became the chief cash crop in Virginia following the successful demonstration in the early 1600 s that it could be profitably grown (Kulikoff, 1986; Phillips, 1966). As tobacco farming spread throughout the colonies of Maryland and North Carolina, the shortage of white immigrant labor as indentured servants and the declining prices of tobacco especially after 1680, made slave labor indispensable to plantation owners. Ironically, Africans were often exchanged, by the "traders in flesh," for the tobacco that would indenture them for life and "perpetuity" (Hundley, 1979). Kulikoff (1986) explains that "planters turned to African slaves to replace white servants, thereby elevating the status of poor whites." Thus from the very beginning, tobacco helped to determine and solidify the minority group status of blacks in American society through a system of economic production and social group dominance based on racism.

A number of reports about slave culture supports the observation that smoking was not an uncommon practice. Hundley (1979) noted that smoking was virtually habitual among slave men and women and according to Adams (1989), "photographs and drawings of slaves invariably showed someone smoking a pipe." Handler and Corruccini, (1983) maintain that "plantation managements" used tobacco as a form of social control to reward or induce desired outcomes. Following West African traditions, the pipe was used by slaves in medicinal healing practices and as an internment custom. In an examination of the dental remains of slaves in Barbados, evidence was found suggesting that pipe smoking of tobacco among the slaves was an adult convention beginning around the age of 20 and occurring more frequently among men than women (Handler and Corruccini, 1983).

Although we cannot be precise about the historical prevalence of smoking or the epidemiology of smoking related diseases during the antebellum period, it is reasonable to assume that smoking, in addition to the generally unhealthy living and working conditions, exacerbated the respiratory morbidity and mortality of slaves. Savitt (1978) in his work on the health care of slaves found that blacks suffered lung diseases from working in the tobacco factory. He explained that:

> Tobacco dust affected beginners more often than veteran tobacco hands, and bothered bale unloaders and unpackers more than other workers. The dust irritated eyes, causing excessive tearing; a combination of dust and tobacco juice from the leaves also caused rashes on the face and backs of hands. All tobacco workers constantly inhaled nicotine and some, no doubt, suffered acute poisoning, characterized by insomnia, headache, watery eyes, nausea, and vomiting... Since skilled black laborers often learned their trades at an early age and remained at their tasks in the factories for years, the prevalence of tabacosis and other chronic respiratory diseases among these hands must have been greater than among most other agricultural and industrial workers except miners (pp. 107–108).

After emancipation, black workers played a crucial role in agricultural production and cigarette manufacturing particularly in Virginia and North Carolina. Recruiters roamed the deep South enticing black sharecroppers and the unemployed with

permanent jobs. U.S. Bureau of the Census data (U.S. Department of the Census, 1904, 1914, 1923, 1933, 1943) show that between 1900 and 1940 (Table 1), the number of tobacco manufacturing jobs held by African Americans had increased by more than twofold at one point. In 1910, about half of the male and female unskilled laborers were African American and by 1930, blacks represented more than a quarter of all persons in the industry. Jones (1984) in a review of the 1920–1940 period comments that racial segregation and an inequitable wage structure were an integral part of the tobacco industry and reflected the systemic racism and sexism which existed in the South. Even though black and white workers were employed by the same companies, blacks in similar occupations were paid less, had less job security, held few supervisory or skilled positions, and were assigned to the least attractive jobs or "dirty work" which also exposed them to greater disease risks.

The migration of African Americans to Northern cities during the first half of the century has been viewed as a period in which traditional community customs and sanctions against cigarette smoking and excessive alcohol consumption were relaxed or less effectively maintained (Frazier, 1966; Herd, 1985). However, very little empirical data exist about tobacco smoking among African Americans during this era. Du Bois (1898), in *The Philadelphia Negro*, included a chapter on the health of African Americans but refers only sparsely to smoking as a vice and then primarily in the context of "the drink habit."

Two earlier studies on smoking that included African Americans were conducted in 1947 (Mills and Porter, 1953) and 1952–1954 (Kirchoff and Rigdon, 1956). The 1947 study of residents of Columbus, Ohio found that 68.9% of "colored" men and 36.4% of "colored" women were smokers. It also revealed that the prevalence rates increased with age and were highest among older black males (> 59 years of age) who smoked pipes or cigars. Among black women smokers, the age pattern was reversed and practically all consumed cigarettes. In a study of persons visiting, attending, or working at hospitals in Galveston and Houston, Kirchoff and Rigdon (1956) found that two-thirds of "colored" males smoked compared to one–third of "colored" women and both gender groups smoked fewer cigarettes than whites.

Another important dimension of the historical relationship between African American communities and tobacco is marketing and promotion. Advertising by the tobacco industry to African American communities did not become a major consumer marketing strategy until the 1950 s (Pollay *et al.*, 1992). The major medium employed was black oriented magazines such as *Ebony*, *Our World*, and *Tan* (CDC, 1995). Black entertainers (e.g. Lionel Hampton, Sarah Vaughan, Count Basie) and especially star athletes (e.g. Joe Louis, Jackie Robinson, Willie Mays) were the principal figures used to advertise cigarettes to African American consumers. During a period in African American history when there was very limited recognition of the accomplishments of blacks by the majority culture and institutions, the tobacco industry exploited this void by using symbols of "race pride" (e.g. black models, documentary films) to sell cigarettes to African Americans. Marketing cigarettes through black owned media accelerated during the tumultuous civil rights and cultural renaissance period of the 1960 s and early 1970 s. This commercial practice was supplemented by billboard advertisement, sponsorship of civic and cultural events, and support of major political organizations (e.g. NAACP, Urban League, Black Congressional Caucus) and educational institutions (e.g. United Negro College Fund). Dependence on the resources donated by the tobacco industry often conflicts with health promotion and disease prevention initiatives to reduce smoking in African American communities (Cooper and Simmons, 1985; Blum, 1989; King and Williams, 1995).

As has been demonstrated in this brief historical analysis, the production, use, and marketing of tobacco products helped to establish and support the dominant social position of the majority group through the institution of slavery and the Jim Crow system of segregation and inequality. Almost invariably, the tobacco industry whether as an employer or purveyor of commerce adhered to the conventional social thought (e.g. genetic inferiority) regarding "race" and instituted or reinforced social control mechanisms (e.g. discriminatory employment practices, exploitative marketing campaigns) resulting in a social system which subjugated African Americans. Consequently, "race" as a social construct inextricably embodies the struggle of African Americans for social equality and

Table 1. Employment in tobacco manufacturing: 1900–1940[a]

Tobacco manufacturing	Black males (%)	Black females (%)	Total blacks (%)	Total persons
1900	10,232 (7.8)	5,117 (3.9)	15,349 (11.7)	131,452
1910	14,717 (7.5)	10,746 (5.5)	25,463 (13.0)	195,370
1920[b]	19,354 (10.7)	21,829 (12.1)	41,183 (22.8)	180,379
1930	14,608 (11.8)	18,367 (14.8)	32,975 (26.6)	124,296
1940	12,120 (11)	12,040 (11)	24,160 (22)	109,820

[a]Total persons in tobacco manufacturing included unskilled, skilled, and managerial positions; [b]the 1920 census classified tobacco workers as white and non-white.

human rights and therefore neither their relationship to the tobacco industry nor the empirical study of tobacco use can be separated from this historical legacy.

"RACE" BIOLOGY AND SMOKING

In American society, the assertion of "race" as a biologic or genetic category evolved from deeply rooted beliefs about inherited differences among visibly distinct groups of human beings. Somatic group differences, distinguishable primarily or perhaps solely by phenotypic attributes such as skin and eye color, hair texture, and facial features were believed to determine among other things health, intellect, culture, and societal advancement (Marks, 1995). Presumed differences (Cooper, 1984; Wilkinson and King, 1987; Jackson, 1992) in disease susceptibility, clinical manifestations, medical outcomes, and "long-term biocultural responses" undergird physiologic constructs about "race" and provide a rationale for scientific investigation of "racial" group variations, however subjectively defined.

Recently, RCSG differences in the metabolism of tobacco have been cautiously suggested. Specifically, Wagenknecht *et al.* (1990) stated that the "finding of racial differences in cotinine levels across geographic areas and gender groups are consistent with a genetic mechanism" possibly reflecting "innate differences between the races in excretion of nicotine and cotinine." Also reportedly, Richie *et al.* (1994) have "demonstrated a biological association" between nicotine metabolism and "race." Noting the Wagenknecht *et al.* (1993) finding, as well as the lack of definitive evidence, other investigators (Hatziandreu *et al.*, 1990; Hebert, 1991; Harris *et al.*, 1993; Ahijevych and Wewers, 1993; English *et al.*, 1994; Wynder and Hoffmann, 1994) have recommended further examination of a genetic predisposition or link.

The emphasis or study of a genetic (and causal) link between "race" and ethnicity and addictive substances generally is neither new nor indisputable (Fisher, 1987; Chueng, 1989; Heath, 1991; Smith, 1993) and is very much within the tradition of "race biology" (Marks, 1995). Studies of other addictive substances (Schaefer, 1981; Reed, 1985; Chueng, 1989; Smith, 1993) have been conducted to investigate metabolic differences between "racial" and ethnic groups such as the metabolism of ethanol to explain "firewater" responses of Native Americans and "flushing" among Asians. Also, evidence exist showing dissimilarities in the metabolism of some drugs and the effects of certain pharmacologic products on "racial" and ethnic groups (Kalow, 1989).

Research findings about "race related" biologic differences in smoking patterns, behavior and effects should not be embraced unquestionably. Metabolic variations in cotinine levels (McCarthy *et al.*, 1992) between RCSGs can be influenced by smoking, overall health status and physical activity, age (Ahijevych and Wewers, 1993), thermic effects of food (Jacob *et al.*, 1988), influences of fluids such as caffeine and liquor, diet (Bauman and Ennett, 1994), exercise, and physical fitness (Perkins, 1992). Thus, RCSG differences in cotinine levels may be culturally derived or environmentally determined. In addition, the rate of urine excretion of nicotine and cotinine, conversion rate of nicotine to cotinine as well as other metabolic processes may also affect blood cotinine levels (Idle, 1990). Moreover, a tremendous amount of variation exists in individual metabolism suggesting the need for studies with large samples sizes.

A question seldom asked is whether the established RCSGs or categories represent an optimal, valid, desired or necessary genetic division of skin color based group characteristics or variations? Considering genetic admixture, genetic drift, natural selection, and a lack of cross-national or migration studies, "racial" taxonomies would appear to be related more to social convenience, custom, or convention than any "true" distribution of population genes. How these categories are defined may have little meaning outside a given society. For example, what are we to make of any differences found between RCSGs such as whites in the U.S. and those in Russia or African Americans and blacks in Tanzania or Brazil? Are we to expect the same "genetic" findings or links (e.g. metabolism of tobacco) simply because they are classified as of the white or black "race?"

Furthermore, because of the biodiversity of human beings, no matter how one defines RCSGs, it is almost certain that some genetic differences between and among ancestral groups will be found. In this respect, the use of biochemical verification or biomarkers in smoking research should be examined in relation to the conceptual meaning of "race." In this context, the technical accuracy or reliability of these measures or procedures are not being contested. Rather, the critical issue is more profoundly expressed by examining the validity of RCSGs as biologic phenomena. Without appropriately considering these issues, the use of biologic markers in classifying smoking prevalence by "race" can connote purely genetic representations and reinforce historical conceptions of "race biology."

An often overlooked point is that biologic differences are not by definition the same as genetic differences (Polednak, 1989). Biologic differences in human functions such as metabolism may be precipitated by the environment (e.g. radiation, toxic exposures, nutrition), intra-generational or cross-sectional factors (e.g. migration), and rarely do they affect all members of a RCSG.

Even if one accepts the validity of genetic RCSG differences, there is more genetic variation (e.g. blood groups, serum proteins, and enzymes) within RCSGs than there is between such groups (Hulse, 1962; Baker, 1967; Lewontin, 1972; Lewontin *et al.*, 1984; Latter, 1980; Cooper, 1984). According to Lewontin (1972) the within-group variation may comprise 95% of all human genetic differences among RCSGs. Consequently, with regard to empirical research about "race related" genetic differences in smoking, it is crucial to demonstrate that within-group variations in biologic processes (e.g. metabolism of nicotine) are less frequent or "important" than between RCSGs. Otherwise, researchers may identify and focus on variations which are less significant or secondary and could result in misleading or misunderstood findings.

Additionally, "race biology" research like other types of empiricism, does not take place within a social vacuum or a value free scientific context (Duster, 1990; Alper and Natowicz, 1992). In particular, it is influenced by preconceived opinions, cultural norms and values, political agendas, and societal resources for research. Curiously enough, a compelling observation is that "race biology" research is predisposed to and rewarded for investigating "inherent differences" rather than commonality. This focus reinforces a system of classification that reflects the dilemma of "race" in American society. It appears unlikely that if there were no socially acceptable purpose or function (e.g. social stratification, groups rights and privileges based on skin color) for "racial" taxonomies, there would not be such a strong interest in "race biology." Marks (1995) further explains that:

> classifying humans is fundamentally different from classifying snails or flies. First, since humans are both subjects and objects, classification of humans is inevitably a social issue as well as a biological issue, and therefore the recognized categories have power by which to validate inequalities and injustices—which are irrelevant to flies and snails. Second, because of inequalities and injustices, the classification of individual humans takes on significance to those people being classified—which is again not a consequence to the classifier of snails or flies (p. 56).

The social arena in which science is inextricably a part also plays a major role in the acceptance of "race biology." Research findings of RCSGs "genetic differences" may tend to be more readily or uncritically accepted than non-biologic research by the general public, policy makers, and the scientific community because they: (1) have the "scientific imprimatur" of the basic sciences or the medical model; (2) may suggest an immutable or natural (i.e. genetic) quality that is beyond the control of individuals; (3) absolve or reduce the societal responsibility; or (4) may promote a sense of "racial" or genetic superiority.

The historical experiences of minority groups, especially African Americans, have often shown that inquiries into group genetic differences have been only but a step away from conclusions about "genetic deficiencies." These are important reasons why considerable caution must be exercised and the assumptions and limitations explicitly stated about a genetic etiology or biologic basis for RCSG differences either related to smoking or other health risks and diseases.

SMOKING, "RACE" AND SOCIOLOGICAL INDICATORS

In contrast to biologic explanations of smoking prevalence and behavior are the sociological indicators or the nucleus of "race" such as social class, culture, and the less frequently examined subject of racism (Sheldon and Parker, 1992; Krieger *et al.*, 1993; King, 1996). With a few exceptions (Harris *et al.*, 1993; Royce *et al.*, 1993; Escobedo *et al.*, 1995; Nelson *et al.*, 1995) most social or behavioral studies of smoking among RCSGs do not include operational definitions of "race" and thus its indistinctive quality is not limited to the biological sciences.

Social class

Confounding the study of African Americans' smoking patterns is the question whether "race" is an expression of lower class behavior and/or an indicator of skin color based group inequality (Feigelman and Gorman, 1989; Orleans *et al.*, 1989a; Navarro, 1991; Krieger *et al.*, 1993; Williams *et al.*, 1994; Royce *et al.*, 1995; Williams and Collins, 1995). Some studies (Warnecke *et al.*, 1978; Pierce *et al.*, 1989; King *et al.*, in press) for example, support the thesis that there exists a greater proportion of smokers among African Americans because smoking is primarily a behavior of lower socioeconomic status (SES) groups and that there are proportionately more blacks in this social stratum than whites. Others, however, point out that social class does not explain all of the variance associated with smoking and African Americans. Novotny *et al.* (1988) as well as others (Fiore *et al.*, 1989; Hatziandreu *et al.*, 1990) have found that blacks, regardless of SES, are less likely to quit smoking than whites. Also, African Americans compared to whites are more likely to smoke fewer cigarettes (Harris *et al.*, 1993; King *et al.*, in press) irrespective of SES. Further, class discordant results in smoking between RCSGs may depend on the specific type of smoking behavior being examined; the particular SES indicator (Kabat *et al.*, 1991); or, more likely, reflect other variables not measured by SES. Thus although it is necessary to control for SES, it may not be a sufficient explanation of differences between RCSGs and smoking or other health problems (Navarro, 1991; Williams and Collins, 1995).

Part of the difficulty in explaining the association between RCSGs and health status results from the

limitations and problems with current measures of social class (e.g. income, poverty status, education, residential setting, health insurance, employment status, occupation). In an assessment of SES indicators, RCSGs, and health status (Wilkinson and King, 1987; Williams *et al.*, 1994; King and Williams, 1995; Krieger *et al.*, 1993; Navarro, 1991; Williams and Collins, 1995), the following shortcomings have been cited: (1) important forms of social stratification (e.g. residential segregation) which influence health status are not usually measured by SES indicators; (2) differences exist between RCSGs in the practical significance (e.g. wealth, income, occupational status, purchasing power) of SES indices; (3) the lack of subjective indicators and an overemphasis on objective measures; (4) some SES measures (i.e. education) are temporally bound and may not fully account for "lifetime exposure to deprived conditions" or the instability of middle class status among African Americans; and (5) problems in specifying the causal direction of SES measures and health care. Thus social class indicators may not consistently or accurately measure the effects of SES between RCSGs.

Racism

In large measure, minority group social status, risks of disease/illness, health resources and access, and psychological and physical well being of African Americans are products of societal racism (King and Williams, 1995)—defined as a set of processes or structures that promotes or results in an inequitable distribution of societal resources based on an ideology purporting the biologic, cultural, or social inferiority of a RCSG (Omi and Winant, 1994; Essed, 1995).

Within the health care system there exists various forms of discrimination including treatment disparities, prejudice and bias, and stigmatization (Council on Ethical and Judicial Affairs, 1990; Sullivan, 1991; King, 1996). Consideration of these issues is critical in deconstructing what is meant by "race" and how racism can be employed as a reliable empirical variable to explain health behavior and health status. The inattention it has received in minority group health research is related both to its underdeveloped qualities as an empirical variable, its perceived legitimacy, and the orientation of researchers. Failing to estimate this component of "race" either at the micro- or macro-level leaves unexplained important personal experiences (e.g. psychosocial stress, discrimination), history, and social forces (e.g. economic trends, institutional racism) which could account for some of the health differential among RCSGs.

In the literature on factors influencing the smoking behavior of African Americans, racism however is seldom mentioned. Yet it seems reasonable to assume that higher smoking prevalence rates among African Americans, and particularly black men, result in part from this form of social inequality.

The association between present day racism and smoking does not normally mediate through repressive and overt acts of discrimination such as denying a person a right to buy cigarettes or a deliberate act to inflict harm based solely on skin color. This classic view of discriminatory behavior is less probable and reflects the transformations which have occurred in the manifestations as well as the complexity of racism (Omi and Winant, 1994). Rather, racism is more likely to occur through more powerful, indirect, and covert systems of structural discrimination (King, 1996) and have a cumulative impact on individual behavior (Geronimus, 1992, 1993, 1996; Williams and Collins, 1995). Institutional barriers, for example, faced by African Americans in other social sectors (e.g. education, employment, health care access, social policy) can lead to increased psychosocial stress initiating the use of tobacco or other abusive substances to mask or abate personal anxiety, social tensions, and community pressures (Wellman, 1977; Romano *et al.*, 1991; Lacey *et al.*, 1993; Geronimus, 1996). These structural impediments may foster a sense of powerlessness to influence or improve one's own or community's social status which in turn can result in fewer efforts to exert greater control over individual health behavior and consequently, may be partially responsible for lower quit rates.

Targeted marketing by the tobacco industry of black and other minority communities suggests another perspective for examining the relationship between racism and cigarette smoking. An analysis of institutional racism as a form of systemic discrimination, intentional or otherwise, examines both the process and the effects of structural impediments on social equality (Wellman, 1977; Essed, 1995; King, 1996; Moore *et al.*, 1996). African American communities are targeted by the tobacco industry because of their vulnerability and potential as consumers of tobacco products. They are perceived as lucrative "open markets" wherein virtually unrestricted promotional opportunities (e.g. pervasive billboard advertisement; disproportionate number of the poor; organizational sponsorship) exist to find new and retain old customers. Particularly poignant examples of the attempt to manipulate minority communities was the unsuccessful 1990 campaign of the R.J. Reynolds Tobacco Company to market Uptown cigarettes to the African American community in Philadelphia; and more recently, the attempt by another cigarette manufacturer, Star Tobacco Corporation, to "market an Afrocentric cigarette" (with red, black and green packaging) called the "The X Brand" (CDC, 1995).

In this regard, tobacco manufacturers through their marketing campaigns exploit the socio-historical degeneration (e.g. residential segregation, economic marginalization) of many black communities;

and are legitimated and protected by certain political and economic interests (e.g. Congressional support, advertising laws).

Furthermore, the tobacco industry's marketing efforts cannot be viewed separately from the pandemic of substance abuse and other social problems in many African American communities; the decreasing market demand for tobacco products in majority communities; or the access and organization of health care services. In investigating racism and tobacco use among African Americans, it is useful to explore the systemic influence to understand that a crucial element of "race" is the interconnected structural expressions of power and ideology. Thus, while the motivation to market products to African Americans may not be intently racist in the classic sense (i.e. intentional harm), the effects of greater tobacco addiction (e.g. excess morbidity and mortality, community dependency, and higher social costs) may serve to perpetuate majority group dominance and social inequities that the industry has helped historically to create.

As an empirical variable, racism can be examined by focusing on the individual (e.g. psychosocial stress/depression, health status, lifestyle patterns, social interactions) or the community. At the individual level, measuring racism most typically entails processes of internal (e.g. self perceptions, interpretation, experience and knowledge) rather than external validation (i.e. observer assessment). The use of macro-level indicators (e.g. residential segregation, treatment disparities) to measure institutional racism can be employed to assess its effects (LaVeist, 1989; Polednak, 1991; Escarce *et al.*, 1993; Whittle *et al.*, 1993; King, 1996). Also, it is recognized that researchers will not be able to measure all the dimensions of individual or institutional racism. Some measures will be more reliable and revealing than others and not all such experiences need to be quantified.

Culture

In the literature on cultural influences on smoking among African Americans, two central themes have emerged and are frequently combined: (1) the use of culturally oriented health education programs and institutions (e.g. organizations and social networks) to conduct smoking intervention projects; and (2) culture as an explanation of smoking behavior.

Cultural sensitivity, relevance, acceptability, competence, and other expressions of multiculturalism have been widely employed as ideas and mediums by which to communicate anti-smoking messages to minority communities (Orleans *et al.*, 1989b; Stotts *et al.*, 1991; Robinson *et al.*, 1992; Cella *et al.*, 1992). The involvement of minority institutions and organizations has been another means of delivering smoking cessation programs and increasing community awareness of this health problem (Hatch *et al.*, 1993; Stillman *et al.*, 1993). Though seemingly novel, variations of these strategies have been employed during other periods of African American history (Graves, 1915; Torchia, 1975). Moreover, the historical use of culturalist approaches has not been independent of broader social forces and factors including the struggle for "racial" equality, social thought about "race" or the health and self interests of the dominant group (Allen, 1915; Savitt, 1978).

In explaining smoking behavior among African Americans, culture is often used as a synonym for "race" and as a general descriptor of group identity and behavioral characteristics, beliefs, and attitudes (Corin, 1995). Though cultural determinants of smoking behavior are important to investigate, the culturalist framework has some weaknesses. For one, references to cultural differences are frequently made without providing a substantive definition of the term. Moreover, few researchers explore theories and perspectives about culture to measure and explain the specific mechanisms, adaptive patterns, norms and belief systems which influence smoking behavior among African Americans. References to culture in smoking research frequently appear as summary comments about "other possible contributing factors" and convey the difficulty of studying culture without employing anthropological theory and empiricism.

Conceptions of culture which do not consider its character to adapt to specific social and physical environments are likely to be inconsiderate of time and the likelihood of change. Even though, for example, tobacco consumption among African Americans appears to have a cultural lineage to West Africa, the association is unclear. Few studies have explored the cultural history of African American smoking behavior (e.g. pipe smoking or dipping snuff among older black women or the basis of religious restrictions) linking it either to Africa or earlier periods of American history.

In criticizing the ethnocentric tendency "to view one's own culture as the standard against which others are judged," Senior and Bhopal (1994) argue that the focus of most minority health research has centered on majority–minority group comparisons of diseases or risk behaviors which are more prevalent among minorities. For example, most research on smoking among African Americans invariably contrast their rates with whites, even though among RCSGs they (i.e. whites) do not have the lowest prevalence rates. Moreover, researchers (Stotts *et al.*, 1991) in at least one case have described the lower rate of smoking among black adolescents as lagging "behind those of white children"—as opposed to doing better—and thus "negatively" viewing difference or risk behavior when it appears to favor the minority group.

Another outcome of this general ethnocentric bias is that intra- or inter-minority group health

status and behavior is less often investigated. Practically, the study of social diversity among African Americans is important because it could: (1) eliminate or minimize the between-group "genetic" factor of "race"; (2) facilitate the development of methods and interventions which might be more applicable or appropriate for minority groups by not exclusively standardizing the procedures or results according to the majority group; (3) foster more critical and candid discussions of the internal limitations, shortcomings, and problems associated with certain health practices or beliefs among minority groups; and (4) provide more detailed information about the smoking behavior of African Americans in terms of regional differences, nativity, or religion. These points are not meant to suggest that majority–minority group comparisons are not valuable but rather they should not be the exclusive means or framework for studying the health behavior of RCSGs.

Health education initiatives promoting anti-smoking ideas and messages which employ cultural symbols (e.g. literature, media), institutions (e.g. churches, civic organizations), and strategies are necessary but insufficient means of dealing with structural problems such as socioeconomic inequalities, access to health care, racism or stressful social conditions. Thus only fleeting or marginal "success" may be achieved using pretty pictures with black faces. Lastly, health education programs run the risk of victim blaming. In this regard, it is essential to avoid culture of poverty paradigms. Most proponents of this viewpoint unfailingly confuse notions about cultural behavior and values with "adaptations to powerlessness" (Omi and Winant, 1994).

System approach

Figure 1 presents a systems model approach (i.e. inputs, process, and effects or outcomes) to the study of "race" and smoking. Input components refer primarily to the various external elements that affect or determine the internal or host processes. The input factors may include the type and quantity of cigarettes (Huang *et al.*, 1992; Wagenknecht *et al.*, 1992; Royce *et al.*, 1993; Ahijevych and Wewers, 1994; English *et al.*, 1994), differences in smoking topography (McCarthy *et al.*, 1995; English *et al.*, 1994), synergistic factors including exposure to occupational carcinogens (Sterling and Weinkam, 1978; Swanson *et al.*, 1993), nutrition and alcohol consumption, and passive smoking (Wagenknecht *et al.*, 1993). Also, multiple input factors affecting internal biologic processes may be synergistically related. Studies showing that African American smokers, compared to other RCSGs, consume cigarettes which are higher in tar and nicotine, have different smoking styles, or are more adversely exposed to synergistic factors and environmental tobacco smoke, are suggestive of greater risks to internal processes and, indirectly, adverse outcomes.

Process components refer specifically to the host factors or changes which occur within the human organism as a result of exposure to tobacco smoke. As previously noted, some studies (Wagenknecht *et al.*, 1990, 1992; Andreski and Breslau, 1993; Ahijevych and Wewers, 1994; English *et al.*, 1994; Crawford *et al.*, 1994; Sidney *et al.*, 1995) have shown that cotinine is higher among blacks than whites even after controlling for certain input factors.

Outcomes or effects of cigarette smoking comprise the interactions of input and host factors and result in biologic reactions or consequences such as palatable sensations, addictive behavior, and disease manifestations. The input and process factors listed in Fig. 1 are key causes of the higher risks and incidence of tobacco related diseases among African Americans (USHHS, 1985; Harris *et al.*, 1993; Devesa and Diamond, 1983).

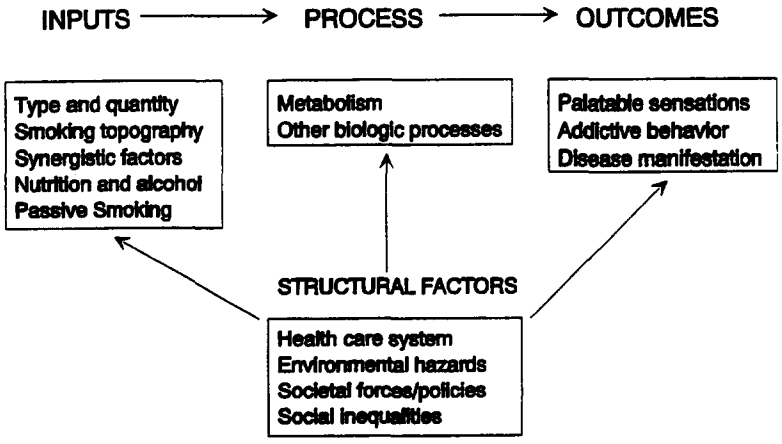

Fig. 1. Systems model approach to the Study of "Race" and smoking.

A systems approach must also consider the complex and interrelated macro-sociological or structural and historical factors affecting input factors and outcomes. Of specific salience is the health care system (e.g. access and treatment), environmental hazards (e.g. air pollution), societal forces and policies (e.g. social stressors, commercial promotion and exploitation, cultural proscriptions and public policy), and social inequalities (e.g. poverty, racism). These factors, though not micro-level or individually determined, indicate disparities in social power which may differentially impact the promotion, initiation, and the continuation of smoking. Controlling for these and other variables could also help explain variations in smoking related outcomes associated with RCSGs.

SMOKING AND "RACE": CAUSE AND EFFECT

Table 2 presents a matrix illustrating the duality in conceptions about "race" in smoking research as a cause and an effect whether conceived as either a social or biologic/genetic variable (Cooper, 1984).

With regard to the Cell A, genetic or biologic factors are not considered to be the "primary causes" of the higher smoking rates of African Americans in the sense that they create an innate or greater desire for cigarettes, but rather the "secondary causes." That is, once addicted, blacks may be less able (due to genetic reasons) to reduce the severity of the addiction or to stop smoking (Wagenknecht *et al.*, 1990). If this "secondary cause" of "race" (Cell A) as a genetic factor is accepted, then being black itself may be viewed as the reason for higher smoking rates because they (blacks) have lower quit rates than whites due to a reduced genetic capability to metabolize tobacco. And thus "race" in the biologic or genetic sense becomes not only "the cause of the phenomenon under study" (Sheldon and Parker, 1992) but also an immutable "fact." Interestingly, the idea of the immutability of RCSG differences is analogous to a person who looks at today's weather (or "innate racial" differences) and postulates generalizibility or permanence in terms of history (i.e. it has always been this way) and the future (i.e. it will always be this way). This *fair weather fallacy* undergirds social thought about "race" and genetics.

On the other hand, biologic or genetic "race" differences in effects (Cell B) may be socially or environmentally derived (Cell C). Further, these types of causes are not always perceived as invidious or socially repugnant and harmful.

Not addressed by the genetic/biologic propositions (Cells A and B) are the very basic questions about what "race" actually means or whether its implied meaning is valid. For example, would findings about "genetic" differences apply to black Hispanics or other darker-skinned populations? Or would the smoking rates vary among blacks depending on the amount of melanin? And if so, could cotinine be a biomarker for "race" and darker hued whites with this same "genetic" condition be empirically black? More than anything else, these questions demonstrate the simplistic conceptions and the difficulty of using "race" or skin color as a genetic and biologic marker or determinant because of the complications in classifying, validating, and interpreting RCSG differences.

Table 2. Cause and effect model of "race" and smoking

Meanings of race	Cause	Effect
Biologic/genetic factors	A	B
Social factors	C	D

Cell A: refers to the genetic or biologic conceptions of "race" as a causal or independent variable with regard to smoking. While there is no evidence indicating that blacks begin smoking due to an innate craving for tobacco, a genetic etiologic link between "race" and nicotine metabolism has been suggested (Wagenknecht *et al.*, 1990) as plausible—though arguably "premature" (Perez-Stable *et al.*, 1992; McCarthy *et al.*, 1995).

Cell B: suggests different biologic outcomes between RCSGs (e.g. higher rates of lung cancer among blacks) as a result of cigarette consumption. Smoking is viewed as the independent or causal factor and biologic conceptions of "race" differences in disease as the dependent or effect variable.

Cell C: postulates "race" as a social variable and as a cause of smoking. This is a common understanding of the etiologic association between "race" and smoking. For example, "race" (e.g. as an expression of lower class behavior or varying levels of psychosocial stress among RCSGs) influences smoking rates.

Cell D: hypothesizes that some RCSGs (i.e. minority groups) are differentially affected due to the social consequences of smoking. For example, one possible effect would be the social costs such as the greater loss of productivity due to smoking related illness (Rivo *et al.*, 1989).

DISCUSSION

From its inception, American society has used the "race" concept to define variations in human appearance and behavior and to allocate valued resources, social opportunities, and human rights. So nimbly interwoven is "race" in the fabric of American social institutions, culture, and the health sciences that the genesis, assumptions, standards, and ideas about its meaning or "racial" group dominance are infrequently recognized or questioned. Definitions and uses in the health sciences which are considered "normal" or acceptable quite often conceal archaic, erroneous, and biased conceptions that do not reflect the dynamic and essentially socio-historic character of "race."

In this review of some of the important empirical literature on smoking among African Americans, I have argued that greater conceptualization and empirical investigation of the "race" concept are warranted because simple skin color based categorizations can lead to inaccurate, incomplete or misleading analytic associations and conclusions regarding smoking behavior among African

Americans or other RCSGs. Discussions of the complexity, contradictions, and validity of "race" as theoretical and empirical formulations in research on cigarette smoking among African Americans raise broader questions and challenges to established tenets and theories.

Further, in view of the overwhelming evidence that there are no distinct "biologic races," it seems appropriate that all biologic and genetic conceptions and references to "race" be fully explained, justified or discarded. Due to the potentially detrimental purposes to which "race biology" can be used, "the levels of criticism... and the stories that emerge must be subject to more intense scrutiny from the scholarly community" (Marks, 1995). In addition, issues related to the fundamental sociological character of "race" such as social class, racism, culture, majority group dominance, and inequality should be addressed explicitly in defining the meaning of "race" and explaining the significance of differences in smoking behavior among RCSGs.

Far from being a mere academic exercise, the study of the meaning of "race" in behavioral and epidemiologic smoking research has practical import. Smoking is the most preventable cause of morbidity and mortality and results in over 450,000 American deaths annually as well as enormous social costs. African Americans and other minority groups disproportionately share the health burden of tobacco consumption. In addressing this problem it is necessary to deconstruct the "race" concept and thereby provide health professionals, policy makers, and the general public with accurate information about etiologic factors and effective smoking intervention strategies (Lillie-Blanton *et al.*, 1993).

Secondly, a consistent and clearer understanding of the multidimensional nature of the "race" concept advances public health through the development of interdisciplinary approaches to theory, empirical research, and professional practice. Such a perspective expands our understanding of the diverse factors affecting the onset, maintenance, and cessation of smoking among African American and other minority groups. Another important consideration is that because "race" is used to represent multiple and imprecise indicators of biologic functions and SES (King and Williams, 1995), it is difficult to make direct comparisons with other more accurately measured social determinants (e.g. income, education, gender) of drugs use.

The critique offered in this paper is not limited to smoking research or directed to any specific group of researchers or discipline. In fact, the subject of smoking could be replaced by practically any topic in health sciences research (e.g. sexually transmitted diseases) and the points expressed would still be relevant. In similar respects, although this analysis focused on African Americans, it is also applicable to other minority groups. It is noteworthy that this discussion about "race" and health (Donovan, 1984; Bhopal *et al.*, 1991) is not limited to the U.S. as witnessed by the debate which recently took place in Britain about adding an "ethnic categorization" to their national health minimum datasets (Senior and Bhopal, 1994).

Notwithstanding the above comments, one must acknowledge the progress over the past 10–15 years that has been made in including African Americans and other minority groups in smoking research. Inclusion of minority populations, however, as subjects in research projects often presents challenges to researchers and the profession which extend beyond mere numbers. Embracing the idea of "race" as a social concept that changes and is neither universally understood nor accepted constitutes an important challenge deserving of more thoughtful consideration.

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