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# African-American Males' Perception of Law Enforcement: A Psychophysiological Perspective

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AFRICAN AMERICAN MALES PERCEPTION OF LAW ENFORCEMENT:

A PSYCHOPHYSIOLOGICAL PERSPECTIVE

by

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B. A., May 1991, College of William and Mary

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in Partial Fulfillment of the Requirements for the Degree of

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August 1997

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ABSTRACT

AFRICAN AMERICAN MALES PERCEPTIONS OF LAW  
ENFORCEMENT:  
A PSYCHOPHYSIOLOGICAL PERSPECTIVE

Adolph Brown, III

Virginia Consortium for Professional Psychology

Chair: Dr. Ellen F. Rosen, College of William and Mary

This study compared the psychophysiological reactivity of African American and European American males to authority. Nineteen African American males and 23 European American males were randomly assigned to either be interrogated by a police officer, or see a police officer interrogate the experimenter or view a videotape of police activity. Participants' physiological reactivity, acceptance of authority, fear of negative evaluation or social anxiety, and apprehension and anxiety in stressful situations as well as EMG, SCR, heart rate, respiration, and blood pressure were measured. African American males were hypothesized to show greater physiological response than European American males and participants who scored highly on each of the three measures to demonstrate more intense physiological responses. Data were analyzed with separate (race by treatment by time period) analyses of variance. A race X time period interaction occurred:

African American male undergraduates exhibited greater increases in blood pressure and heart rate reactivity and took longer to return to baseline following presentation of stimuli than European American males in corresponding treatment groups.

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## Chapter I

### African American Males Perceptions of Law Enforcement

#### Law enforcement and African American males

The police are "the law" for many African American males -- the laws and the police who enforce them are supposed to be synonymous. However, when police enforce or ignore the laws based on race of the citizen, personalize law enforcement, or violate the spirit of the laws they are supposed to enforce, the African American populace loses respect for authority figures and comes to believe that authority figures (the police) will express an intention to inflict pain, injury, or evil on them. Law enforcement is generally perceived as a threat by African American males (Wall, 1992); they are believed to perceive authority as racist, discriminatory, and oppressive.

Wilson (1993) argued that policemen are not merely officers of the law, but have discretion in enforcing the law. In many instances, they determine under what circumstances the law will be enforced and against which people without adhering to the United States Constitution. He states that African American individuals who display the same behavior characterized by policemen as "criminal behavior" in white individuals are far more likely to be arrested, convicted, and jailed. Wilson (1993) therefore postulates that policemen make determinations of suspicion on the basis of an individual's

race.

Do threatening law enforcement practices evoke behavior in African American males that officers then interpret as irresponsibility, lawlessness, and dependency? If so, then this relationship could produce a self-perpetuating cycle: a self-fulfilling prophecy.

Historical perspective of African American males experience of law enforcement

Law enforcement has come to be a "life threat" to African American males. Anger and frustration are believed to be results of the perceived threat. Smith and Christensen (1992) suggest that hostility and health are linked by exaggerated physiological reactivity to social stressors. They also found that mistrust and suspiciousness were closely related to this trait. Disclosure of personal information regarding a stressful experience elicited heightened reactivity in hostile persons. Increased physiological responses were observed when hostile persons were exposed to relevant social stressors (Smith, 1992).

The aforementioned phenomenon was illustrated in The Stanford University Prison Study conducted by Zimbardo and his colleagues (Haney & Zimbardo, 1977). These experimenters created a simulated prison environment to study how incarceration influenced the behavior of healthy, well-adjusted people. Students were recruited to play the roles of either

guards or inmates. The severe impact of this study soon became so disturbing that the study was terminated before the experiment had run its course. Some of the "guards" became so abusive that some of the "prisoners" suffered severe emotional reactions ranging from anxiety to depression and even extreme rage (not unlike the hypothesized responses of many African American males in genuine social situations involving law enforcement). This study is thought to be exemplary of the phenomenon facing many African American males during encounters with law enforcement. Haney & Zimbardo's (1977) Stanford University prison study demonstrated individual behaviors characteristic of a "keeper and kept" phenomenon believed to elicit physiological reactivity in African American males' encounters with law enforcement.

Many African American males are believed to experience a "racism reaction" when encountering law enforcement and show more pronounced physiological reactivity in response to law enforcement. Law enforcement may therefore be considered a chronic stressor for African American males.

Webster II (1984) defines authority as "The right and power to command, enforce laws, determine, influence, or judge." Law enforcement, used interchangeably with authority in this study, is defined as the person or group of people invested with the right and power to order individuals to behave in accordance with law and to arrest those who do not obey. In

everyday life situations, obedience and respect to legitimate authority is adaptive and contributes to smooth social functioning. However, people sometimes, obey orders that are harmful to them or other people and that in fact violate their own personal values and beliefs. One of the best known studies in social psychology demonstrated this phenomenon. Milgram (1974) investigated obedience to authority and found that a majority of "normal" adult males would administer severe electric shocks to a helpless victim if ordered to do so by a researcher.

#### Historical dynamics of African American males experience of law enforcement

Unlike Milgram's (1974) findings, many African American males have challenged and questioned obedience to legitimate authority as they have become aware of the suffering legitimate authorities cause, as well as their questionable motives and judgment. As an authority or law enforcer can either adversely or beneficially affect one's well-being, many African American males perceive themselves to be an "endangered species" (Gibbs, 1988).

According to Webster (1984) an endangered species is "a class of individuals having common attributes and designated by common name...(which is) in danger or peril of probable harm or loss." Gibbs (1988) argues that this is a metaphoric analogy to the current status of the African American male in contemporary society. Though law enforcement or

authority should contribute toward meeting one's safety needs, including protection, dependency, stability, security, order, limits, structure, and freedom from anxiety, fear, and chaos (Maslow, 1970), many African American males may not perceive law enforcement as an agent of safety and, in fact, may view law enforcement as a source of destabilization.

Gibbs (1984) states that African Americans have been miseducated by the educational system, mishandled by the criminal justice system, mislabeled by the mental health system, and mistreated by the social welfare system. The labels that have been espoused by authorities such as law enforcement, school, and government personnel are invaluable cues to the way in which African Americans are perceived, treated, and valued in society: "dropouts," "welfare pimps," "basketball playing," "delinquents," "dope addicts," and "street-smart dudes" (Gibbs, 1988). Gibbs (1988) also found the African American male to be stereotyped by the five "d's": dumb, deprived, dangerous, deviant, and disturbed, with no room in this depiction for comprehension, caring, or compassion of the plight of African American males.

However, Gibbs (1984) argues that labels can not convey the feelings of frustration, humiliation, and anger experienced by many African Americans who encounter daily doses of failure, rejection, and discrimination. African

American males have been the primary victims of mob violence, police brutality, ghetto homicide, and legal executions (Gibbs, 1984). The brutal lynching of Emmett Till in Mississippi in 1955 and the "justifiable" police killing of Michael Stewart on a New York City subway in 1983 provide vivid and constant reminders for the "endangered" status of many African American males.

Fear of law enforcement is a generalized emotion in many African Americans since to challenge the system is to expect grave consequences if one does not win (Wall, 1992). Many African Americans have seen the power and control of the establishment, historically in whippings, castrations and separations during slavery (Wall, 1992). Law enforcement figures today use overt abuse in the form of harassment and brutality. Victims have not sought the empowering alternative of fighting back and prevailing.

In Police Power, Chevigny (1969) writes that an incident usually begins when a citizen shows lack of respect or obedience to the forces of law enforcement (usually embodied in the policeman himself) which enrages the policeman. A ritualistic process then occurs that sometimes involves assaulting the citizen. The incident almost always ends with an arrest on a charge such as "disorderly conduct," and, if the citizen shows visible signs of having been beaten, the charge becomes "resisting arrest." Many of

Chevigny's (1969) cases show that these abuses are perpetrated in the guise of maintaining order and harassing low-status minority groups including homosexuals, hippies, and African Americans. In Blaming The Victim, Ryan (1976) writes that white police in the African American community are commonly rude and often resort to the use of exceptional force in dealing with residents.

Although the police represent a threat to many African American males by the violating of civil liberties (Wilson, 1990), many African American communities also suspect the police of corruptly interacting with criminal behavior in the community, specifically drug dealers and petty racketeers. Wilson (1990) argues that law enforcement sometimes sponsors the activities that they are supposed to eradicate. This belief creates a maladaptive community and societal dynamic in which an already perceived racist police force is also vulnerable to corruption by local criminals. He also argues that law enforcement officials do not care about the impact that any maladaptive activity has on the African American community. He reports that African Americans perceive law enforcement to have racist beliefs and ideologies which hold that African Americans are subhuman, criminal, not worthy of respect, and that they care little for them or even hate them (Wilson, 1990). Therefore the relationship becomes characterized by mutual distrust and

acrimony.

Wilson (1990) concluded therefore that many African American males justifiably perceive the police force principally as hostile, colonial, imperialistic, an alien force deployed against them. He argues that many African American males believe that the reasons the policemen are in the African American community is to maintain the racist status quo through intimidation of the local Black populace, thereby, reinforcing stereotypical racist attitudes, and power. Many African American males and the police thus essentially perceive each other as the enemy.

African American males have seen the laws, and the law enforcement establishment used to deny them their constitutional, civil and human rights (Wilson, 1990). The African American community has suffered emotionally from violations by authority figures of their own moral and legal codes, and many African American males have witnessed the enforcement of laws designed and passed to facilitate their domination and exploitation, by authority figures (Wilson, 1990). Wilson argues that the historical events that have transpired have bred contempt for laws and authorities.

Laws will not be respected by African American males based on approval by the appropriate societal institutions and sanctions. The laws must be perceived as morally correct, developed and implemented to protect not to



authorize class and/or racial and power, and of ultimate importance is that the laws be enforced without bias. Wall (1992) reports that the 1992 Rodney King videotape beating created public alarm and confirmed for many what had been argued for decades--that police abuse may be covered up, but it is still very much alive and condoned. Also of particular significance were the racial insults used by the officers in referring to the incident. Following the incident one officer responded by saying "I haven't beaten anyone this bad in a long time." The racial overtones in this story are blatantly obvious for African American males, as King was an African American male and the four arresting officers were white males. This is not an uncommon phenomenon for African American males as seen in the McDuffy case in Miami in which Arthur McDuffy was a victim of police brutality. McDuffy was beaten so severely that he eventually died from his injuries (Wall, 1992). Another recent case was the incident in Chicago where Commander Burge tortured African American male suspects (Wall, 1992).

Wall (1992) reports that a white male has never been executed for killing an African American. She also argues that racism in the police departments of America can and does result in a disproportionate use of excessive violence and deadly force against African Americans. Wall (1992) states that reactions to such incidents are reported as isolated occurrences and are minimized for

the most part, with law enforcement being more protected than the rights of the African American victims.

The psychological impact of African American males encounters with law enforcement

According to Wall (1992) African American males must face daily a fearful and threatening reality that white Americans have chosen to avoid or deny. She reports a Morehouse college student as saying "They're trying to kill all of us...all us African American men." The American Psychological Association's (APA, 1993) Violence & Youth: Psychology's Response reports that prejudice and discrimination foster social and psychological difficulties for all vulnerable populations. This report states that current and historic prejudice and discrimination against various ethnic minority groups, gays, lesbians, persons with disabilities, and women result in negative economic and psychological consequences for these groups. The paper reports that slavery, along with its loss of family ties and wretched life conditions endured for centuries by African Americans, leaves a legacy of fear, hate, humiliation, and pain; and has laid the foundation for anger, discontent, and violence for those discriminated against.

Griffin (1991) further examined the relationship between the humiliation dynamic as conceptualized by Klein (1989) and the 3 levels of

racism experienced by the African American community: individual, institutional, and cultural. Klein's conceptualization demonstrates how the roles of the perpetrator, victim, and witness in the humiliation dynamic provides a tool that can be used to comprehend racial oppression and to demystify racist behavior and the responses of the individuals and groups subjected to it. Of particular importance are his suggestions and the coping strategies he offers for reducing humiliations based on racism.

Wall (1992) as well as Siberman (1964) report findings that reinforces the research data found by APA (1993). Both Wall and Siberman found the historical and contemporary situations regarding racism, discrimination, and oppression of many African American males have had a psychological impact on the African American community. They had bred contempt for laws and authorities, for social mores and etiquette, and motivated open and rebellious behavior. These authors report that criminal activity and contempt in many African American youth and young adults continues because they desire pleasure derived from outwitting the laws and the enforcers of the laws. Prestige or recognition is gained by "unsophisticated" African American youth and young adults by daring to challenge the racist "establishment" represented by the authorities and the laws they enforce. Thus the immediate psychological consequence for dehumanization of the African American male

may prove to be self-destructive, self-defeating, and generally maladaptive. Wall (1992) states, "It is not possible to live under the system of racist oppression and not be damaged by its effect." McCall (1994) author of Makes Me Wanna Holler, characterizes the situation of black men in America as feeling that they have no choices in a place that devalues them, thus they attempt to maintain self-respect by going against everything the white "system" stands for by becoming a so-called outlaw and adopting a code of macho violence.

Mancini's (1980) research also lends support to the psychological consequences of discrimination, racism, and perceptions of foreclosed opportunity and life. "Dare devil" behaviors of many African Americans or activities that are physically demanding and occasionally dangerous such as one-on-one basketball games, subway and bus hopping, aggressive interactions with each other which lead to frequent fights (e.g., "playing the dozens"), and confrontational behaviors with parents, teachers, police, and other adult authority figures invite physical retaliation by testing limits, breaking rules, and displaying perceived threatening mannerisms (Mancini, 1980). Mancini also points out that these kinds of aggressive confrontations with the police often lead to victim-precipitated homicide. Thus the judicial arena becomes the "burial ground" for many African American males.

### The Judicial system and African American males

Research conducted by Spohn (1990) looked at differential treatment of blacks and whites within the judicial arena. He found differences in the treatment of offenders charged with violent felonies when comparing the sentencing decisions of black and white trial judges in 4,710 cases presented over 3 years. The results indicate that black judges were less likely than white judges to sentence offenders to prison. However, both black and white judges imposed harsher sentences on males than on females and sentenced blacks more harshly than whites. This research raises the question about the appropriate interpretation of the racial disparity in incarceration rates.

Morris (1988) performed a critical reexamination of and commentary on links between blacks, crime, and incarceration. He found that racial discrimination continues to skew prosecution, plea bargaining, and sentencing. Morris argues that changes in the judicial system alone will not solve the problem of crime. The wider social problem of a systematically isolated underclass, and the antiblack and antiunderclass attitudes operant in the law-and-order movement deserve closer attention for clues to where major changes are needed.

Further disparities were found in the judicial arena by Winkel and Vrij (1990). They found that variations in police treatment of blacks and whites

were due to the police officer's different attribution of meaning to culturally determined nonverbal behaviors. In Study 1, with 92 black and white subjects (average age of 33 years), blacks maintained eye contact less frequently than whites during an interrogation by Dutch police. In Study 2, with 284 subjects (average of 26 years), white police officers seemed to evaluate black gaze behavior more negatively than white gaze behavior.

There are also racial disparities in the makeup of juries. Fukurai et al (1991) found 4 specific determinants of disproportionate racial representation on juries: (1) racial discrimination in jury selection procedures, (2) socioeconomic barriers preventing full-community participation by blacks and other minorities, (3) judicial discrimination that allows racially demarcated jury representation, and (4) institutional racism and bureaucratic discrimination in perpetuating judicial inequality. The researchers state that there still exists a racially demarcated jury system that systematically discriminates against blacks and their full jury participation.

#### Law enforcement and African American attitudes

Although racial disparities exist within the judicial system, that attitudes toward police are believed to be somewhat consistent cross-culturally. Cox and White (1988) explored factors in police-citizen interaction that were hypothesized to be related to negative attitudes toward police (ATP) during

contacts involving traffic citations or other formal and semiformal actions. Questionnaires measuring perceptions of crime prevention effectiveness, police brutality and abusiveness, and trust in the police were completed by 832 undergraduates. Cox and White found that receiving a traffic citation was associated with negative ATP. This relationship held for measures of abusiveness, brutality, and trust in the police. However, when the influence of police-citizen interaction dynamics were controlled, the relationship between ATP and traffic citations disappeared.

The African American male may experience a more intensified reaction toward authority. The influence of culture on the intensity of the reaction to authority has been shown by Masters and Sullivan (1989). They administered demographic and media attitude questionnaires to 65 French and American undergraduates who then viewed excerpts from speeches of known leaders under image only, sound only, or sound plus image conditions. Participants rated each leader's behavior on 9 scales and completed self reports of emotional responses. There was a significant difference between the way in which emotions were reported in France and in the United States. The researchers found that these emotions were modified by cultural effects. Participants tended to expect more authority or aggressive behavior from those holding high offices or positions and they tended to respond more positively

than Americans to anger/threat displays of leaders.

Reaction to authority is also affected by impulsiveness. One-hundred sixty-nine high school students using the Eysenck Personality Questionnaire--Revised (EPQ--R) and an attitude toward authority scale (Heaven, 1989). An association between EPQ--R extraversion and orientation to authority was not found, however various submeasures of impulsiveness correlated significantly with the orientation to authority. Subsequent factor analysis showed risk taking (impulsiveness) and psychoticism loaded significantly on the orientation to authority component.

Another example of the role of culture is the work of Thompson, et al. (1990). They examined how much 87 African American and 70 European American college students agreed with a list of racism reaction statements (the preliminary Racism Reaction Scale, RRS). The researchers found that compared with European Americans, African Americans seemed to see themselves as singled out for differential and inferior treatment. This finding was strongest among African American participants who were distrustful of European Americans in general.

An experimental analysis of the tolerance of blacks toward racists involving questions of direct threat and political tolerance was conducted using a question-wording experiment. It was used to test whether questions



concerning the rights of a threatening group affect a respondent's willingness to extend the same rights to other unrelated groups (Green & Wexman, 1987). Research data were taken from the National Opinion Research Center General Social Surveys from 1972 to 1984. Researchers found that a threatening stimulus significantly reduced a participant's tolerance toward unrelated groups, although the effect was smaller for more highly educated groups.

#### Physiological responses of African American males to authority

Physiological responses of African Americans males in our society are very important in regard to African American males bodily responses in the face of law enforcement figures. Such responses will often determine the outcome of the African American males' interactions with law enforcement. Understanding these physiological changes also may aide in devising more appropriate prevention and intervention strategies against police brutality, racially motivated incidents, and anti-authority stances. It is hoped that initial feelings of threat and anxiety can be taught to be detectable signals for African American males, and possibly law enforcers as well, in order to prevent or reduce the defensiveness processes that often follow such cues. Research on racial comparisons of death rates for African Americans and European Americans issued by the Department of Health and Human Services indicated that African Americans have a greater chance than European Americans of

dying of stress-related illnesses including heart disease and cancer (Greg, 1984). It is believed that African Americans are exposed to highly stressful experiences "triggered primarily by the fact of race." (Mack, 1980). It is therefore a reasonable need to direct research towards understanding the physiological reactivity that occurs when African Americans are exposed to stressful stimuli.

Pope et al (1990) demonstrated that hostility is associated with chronic suspiciousness and mistrust, and these tendencies are likely to be activated in many interpersonal encounters. Researchers have found that endorsement of the Hostility (Ho) scale is indicative of persons reporting a high frequency of suspicious thoughts and expectations of mistreatment during their daily activities. Researchers also suggest that mistrust is one of the more salient features of persons exhibiting hostility. Thompson et al (1990) advances the term "racism reaction" to describe the protective, suspicious stance some African Americans assume when they perceive European Americans singling them out for differential and inferior treatment. It is therefore believed that some African Americans exhibit a racism reaction in light of perceiving a personal threat directed against them as individuals by European Americans whom they encounter on a daily basis. Terrell and Terrell (1981) termed the aforementioned experience of some African Americans as "cultural mistrust."

They designed an inventory to assess African American mistrust of European Americans and European American institutions within four contexts: (1) Education and Training, (2) Interpersonal Relations, (3) Business and work, and (4) Politics and Law. They found that there is a tendency among blacks to mistrust whites--that one possible reason for black children and adolescents not performing up to their potential on standardized mental ability and achievement tests is a result of their distrust of whites evaluating them fairly.

Forster & Govier (1978) demonstrated that physiological reactions (galvanic skin response) occur following presentation of conditioned stimuli without subjects' necessarily becoming aware of their presence. The presence of a law enforcement figure for an African American male triggers significant physiological reactivity, and minor verbal exchanges whether positive or negative, also trigger physiological reactivity in African American males. Most relevant to the aforementioned findings are two investigations by Bargh (1982), and Bargh and Pietromonaco (1982). These researchers confirmed that verbal material could be processed without awareness, but also showed that this could influence later judgements. Subjects who had been exposed to subliminal words that were related to hostility (Bargh & Pietromonaco, 1982) subsequently provided more negative ratings of a standard other person than did those exposed only to neutral control words. These findings significantly

lend themselves to intervention and prevention strategies as the hypotheses of this research are confirmed.

The exposure of racist stimuli involving blacks was found to be associated with increases in blood pressure among blacks (Armstead et al, 1989). These researchers investigated this phenomena using 27 black college students who were instructed to view 3 excerpts showing racist situations involving blacks, anger-provoking, nonracist situations, and neutral situations. Following each scene, blood pressure was taken, a mood checklist, the Framingham Anger Scale, and the Anger Expression Scale of Spielberger et al (1985) were administered. Analyses revealed that blood pressure significantly increased during the presentation of racist stimuli but not of anger-provoking or neutral stimuli. Self-reports of state anger, as measured by the mood checklist, were significant for both the anger-provoking and racist stimuli.

Individual differences in physiological responses to fearful, racially noxious, and neutral imagery were demonstrated by Sutherland and Harrell (1986,1987). They assessed physiological responsivity to fearful, neutral, and racially noxious image scenes in 62 black female undergraduates. Thirty-one vivid and 31 nonvivid imagers participated in a preliminary session during which they were given progressive relaxation training and were instructed to imagine an event on cue. They found that the fearful and racially noxious

scenes elicited significant increases in corrugator and heart rate activity. They also revealed, using the results of multiple regression analyses in which personality variables served as predictors of physiological activity, that certain dimensions of the Type A pattern (coronary prone behavior) and trait anxiety were significant predictors of physiological reactivity. Sutherland and Harrell (1986) suggest that the imagery paradigm is useful for studying the effects of complex social stressful situations related to those stemming from racism.

#### Rationale for this study

Much of the empirical physiological research conducted using African American populations have neglected Kirk's (1986) findings that among blacks, stress is significantly related to the degree and amount of power that a person perceives themselves to have within the societal context. Consequently, powerless blacks experience a great deal of stress and "racism reaction". This is particularly significant for African American males during encounters with law enforcement.

Miller (1992) and Rabkin & Struening (1976) suggested that the experience of racism is a such a stressful life event that mental health might be affected. Despite the efforts and hypotheses of these researchers, few studies have examined the impact of racism as a stressful event in one's life.

Using the experience of racism as a stressor, Anderson (as reported by

Frielberg, 1991), demonstrated the physiological and psychological (anger) reactivity of African Americans to perceived racism. Exposure to racist stimuli resulted in significant blood pressure increases among African American students (Armstead, Lawler, Gorden, Cross, & Gibbons, 1989). Despite these findings, there have been no studies examining whether African American males encounters with law enforcement are similar to African American males exposure to perceived racism. This study aims to fill this void.

#### Hypotheses

Hypothesis 1: Increased physiological responses will be observed when persons, in fear of negative evaluation, have significant stress associated with traumatic events, do not readily accept authority, and become anxious and apprehensive in stressful situations, are exposed to relevant social stressors.

Hypothesis 2: African American males will experience a physiological "racism reaction" or significant increases in heart rate, blood pressure, skin temperature, respiration, and/or jaw muscle tension during encounters with law enforcement.

Hypothesis 3: African American males' encounters with law enforcement will result in patterns of physiological reactivity clearly different from European American males.

Hypothesis 4: African American males will show greater increases in reactivity scores and lengthier intervals in returning to baseline following presentation of stimuli than white undergraduate males in corresponding treatment groups.

## Chapter II

### Method

#### Subjects

Twenty-three white male undergraduates from the College of William and Mary and 19 African American male undergraduates from Hampton University participated in this study. Participants from the College of William and Mary were volunteers from the Introductory Psychology subject's pool and who each received 1 hour research participation credit for this study. Two hours credit or an alternate activity were required to complete the course. Participants from Hampton University were volunteers from Introductory Psychology and Research Methods courses and who received points toward their grade in the course. The mean age of participants was 18 years.

#### Apparatus

Subjects were connected to the Biolab (Stoelting Co., Chicago, IL.) recording instrument (measuring blood pressure, heart rate, skin temperature, respiration rate, and jaw muscle tension). Measurement of blood pressure was performed noninvasively. In this paradigm, the brachial artery was compressed through the use of an inflatable rubber bladder. The bladder is inflated until it totally blocks the passage of blood through the artery. Air



pressure, measured in millimeters of mercury (mm Hg) is slowly released from the bladder until a distention is sensed indicating that blood is allowed to flow through the once blocked artery. The first distention or Korotkoff sound is indicative of and recorded as the diastolic blood pressure and the passing of the last Korotkoff sound is indicative of and recorded as the diastolic blood pressure. Research on human stress notes that blood pressure is most commonly perceived as a labile state-dependent phenomenon (Everly & Sobleman, 1987).

The measurement of heart rate involves the measurement of the number of contractions, or beats, of the major pumping chambers or ventricles of the heart. This phenomenon is often measured within an expressed time interval, usually in beats per minute (bpm). Heart rate is viewed as a labile state-dependent measure in human stress research (Everly & Sobleman, 1987).

Electrodermal activity refers to biochemical characteristics of the skin. The exosomatic method of measuring arousal via the skin involves use of a mild electric current to the skin sometimes called the galvanic skin response or GSR. The recorded measurement is that of skin conductance (SCR). The psychophysiological basis for electrodermal activity is the eccrine sweat glands which respond to psychological stimulation, usually found on the soles of the feet and palms of the hands (Everly & Sobleman, 1987). According to

Andreassi (1980), electrodermal activity has been shown to be a useful index of arousal as it may relate specifically to affective states.

Electromyographic (EMG) measurement of stress-related phenomena involves the use of silver/silver chloride surface electrodes placed in the anatomical proximity of the skeletal muscles. The jaw muscles or the group of facial muscles known as the frontalis have been found to be indices of arousal and stress responsiveness. Research on EMG as an assessment tool reveals strong support, more specifically the value of EMG assessment of frontalis activity (Everly & Sobelman, 1987).

A fifteen minute videotape recording of anger-provoking stimuli was presented in one condition involving law enforcement figures. The videotape contained a clip of the 1992 Rodney King beating. The television and video cassette recorder was positioned approximately 5 feet from the subjects.

#### Physiological Measures

Systolic blood pressure (SBP), diastolic blood pressure (DBP), heart rate (HR), skin temperature (ST), finger pulse (FP), and jaw muscle tension (JMT) were recorded using a Biolab automated oscillometric computerized monitoring apparatus. Physiological measures were recorded by the equipment 8.1 times per minute (480 times throughout the total 55 minute recording period). Period changes (e.g., stimulus onset) were input to the

computerized system with a manual switch.

### Instruments

The modified self-report paper and pencil measures used were an Authority Behavior Inventory -- ABI (Rigby, 1987), Fear of Negative Evaluation -- FNE (Leary, 1983), and the Stressful Situations Questionnaire -- SSQ (Hodges & Felling, 1970).

The Authority Behavior Inventory (ABI) is a 24-item instrument designed to measure the acceptance of authority in the form of a behavioral inventory. The acceptance of authority is based on observable and verifiable actions and events. A subject with higher acceptance of authority is considered pro-authority, and is likely to obey social demands that include the legal obligation to conform. The ABI is reported to have good internal consistency, with an alpha of .84. Total scores on the ABI were found to significantly correlate with a measure of attitude towards authority, with a correlation of .71 (Rigby, 1987).

Fear of Negative Evaluation (FNE) is a 12-item assessment designed to measure the aspect of social anxiety involving the fear of receiving negative evaluations from others. Scores on the FNE are reported to reflect a fear of the loss of social approval and signs of anxiety. The internal consistency of

the FNE revealed a Cronbach's alpha of .90. The validity of the FNE revealed a correlation of .96 (Leary, 1983).

Stressful Situations Questionnaire (SSQ) is a 45-item instrument designed to measure apprehension and concern in stressful situations. The SSQ is reported to measure the level of reported apprehension or concern (anxiety) in various social situations believed to involve a loss of self-esteem. Factor analysis of the SSQ provides four factors which may be used as subscales to assess apprehension in physical danger, apprehension in classroom and speech situations, apprehension of social and academic failure, and apprehension in dating situations. The last three subscales can be combined to form one measure of apprehension in ego-threatening situations. No reliability data were reported (Hodges and Felling, 1970).

#### Procedure

European American undergraduate males of the College of William and Mary were recruited from a sample of several hundred Introductory Psychology students previously participating in mass-testing sessions held at the beginning of the academic semester. African American undergraduate males of Hampton University were recruited from undergraduate psychology courses. Participant's were classified according to their scores on an Authority Behavior Inventory -- ABI (Rigby, 1987), Fear of Negative

Evaluation -- FNE (Leary, 1983), and Stressful Situations Questionnaire -- SSQ (Hodges & Felling, 1970). The scores were combined and the raw score for each measure was standardized. The standardized scores then were used to create a new score and a reliability check was performed to determine internal consistency. Participants scoring in the highest and lowest quartiles of the larger distribution of assessment scores were contacted by telephone and offered credit in their psychology class for their participation. These participants included those whose mass testing data indicated that they have the likelihood to reject authority and propensity for intense reactions to perceived negative evaluation (High-Psychological Reactivity), and participants who demonstrated low scores on the questionnaires (Low-Psychological Reactivity). The record sheet with the person's name and telephone number was removed and destroyed when the individual's participation was no longer needed or if he withdrew from the study. Participants were then randomly assigned to 1 of the 2 experimental conditions or a control condition. An equal number of subject triads (High-R, Aver-R, and low-R) were randomly assigned to each of the three treatment groups. The following are respective treatment assignments: 8 European Americans and 7 African Americans in treatment 1, 9 European Americans and 6 African Americans in treatment 2, and 6 European Americans and 6 African Americans in treatment 3. The three

groups were identical in their treatment except for the stress element. For one group a European American confederate police officer enters the room and interrogates the experimenter with regards to an alleged assailant. The script and instructions to the subject are given in Appendix A. For the second group the experimenter leaves the room for a 5 minute restroom break and the confederate police officer enters soon thereafter, and, in the experimenter's absence, begins to interrogate the participant with regards to a description of an alleged assailant using the same script as for the first group. For the third group the videotape of anger provoking police related stimuli was presented. Participants were told that the study involved psychophysiological correlates of relaxation. Consenting participants were telephoned and signed up on an eligibility list on the human subjects sign-up board along with the date, time, and location of the study. Consent Form #1 provided a broad overview of the study, explained the procedures used in the study, and informed the subjects of the minimal risks involved. Subject's rights were explained in accordance with ethical principles of experiments with human subjects. The consent form was approved by the appropriate human subject committees (Appendix F).

Each individual subject was requested to sit in a reclining chair and requested to allow the experimenter to connect him to the Biolab recording devices. The experimenter recorded heart rate, blood pressure, respiration,

skin conductance, and jaw muscle tension. An automated blood pressure cuff was placed on the participant's nondominant arm. Skin conductance and heart rate sensors were placed on the participant's hand. A jaw muscle tension measure (EMG) was placed along one side of his jaw. The participants were told that none of the connectors were painful and that he would soon forget that they were even there. Then the participant was asked to sit back while the electrophysiological signals were recorded by the experimenter. Ten minutes were allotted for signing of consent forms and a brief introduction whereby the general nature of the study was alluded to while connection activities were occurring simultaneously. The participant was then instructed to sit quietly for 10 minutes and listen to a relaxation/guided imagery training tape, during the first five minutes of this period baseline physiological recordings were taken. This was followed by a 15 minutes stimulus period during which one of the three stressful events occurred. Recording was continued throughout this period. Following exposure to the provoking stimulus, participants were asked to sit back and relax and listen to a tape while the experimenter continued to examine the participant's physiological responses. Then there was another 10 minutes of relaxation/guided imagery training, followed by another 10 minutes of baseline recording, and completed with 5 minutes of disconnection, debriefing, and questions and answers.

After being disconnected from the recording apparatus, participants were told the purpose of the study and thanked for their participation. Participants requesting the results were later mailed a short summary of the findings. They indicated their desire for more feedback by writing their address on the consent form.



## Chapter III

### Results

#### Data Analysis

The data are broken down by race and treatment condition and the physiological measures are further subdivided by the time periods used. Each physiological recording was assessed at nine intervals. Measurements were 1) taken 1 minute after the beginning of the study (baseline), 2) at the beginning of the introduction of the presentation, 3) 1 minute later, 4) upon cessation of the stimulus, 5) 1 minute later of the stimulus (recovery), 6) the beginning of the relaxation phase, 7) 1 minute into the relaxation phase, 8) at the end of the relaxation phase, and 9) 1 minute later. The timing of these measurements are outlined in flow chart form in Figure 1.

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Insert Figure 1 about here

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Hypothesis 1: The hypothesis was that increased physiological responses will be observed when persons are in fear of negative evaluation (FNE), have significant stress associated with traumatic events (SSQ), do not readily accept authority (ABI), and become anxious and apprehensive in stressful situations

are exposed to relevant stressors measured by SCR, EMG, HR, and BP. This hypothesis predicted that there would be significant positive correlations between these paper and pencil measures and the physiological measures. To test this hypothesis the FNE, SSQ, ABI, and physiological measures were correlated. These correlations are presented in Table 1.

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Insert Table 1 about here

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Correlations between ABI, SSQ, FNE, and heart rate and blood pressure physiological measures were consistently significant throughout the nine measured intervals ( $p < .05$ ). Correlations between the pencil and paper tests and the other physiological measures were significant only some of the time but never for all 3 measures and either SCR, EMG, or Respiration.

Hypothesis 2: The second hypothesis maintained that African American males experience "racism reaction" or significant increases in heart rate, blood pressure, skin temperature, respiration, and/or jaw muscle tension during encounters with law enforcement. ANOVAs were conducted for the five physiological measures using treatment presentation (conditions) and race as independent factors. The summary for GSR/SCL is presented in Table 2.

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Insert Table 2 about here

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The summary for EMG is presented in Table 3.

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Insert Table 3 about here

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The summary for heart rate is presented in Table 4.

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Insert Table 4 about here

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The summary for blood pressure is presented in Table 5.

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Insert Table 5 about here

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Of the physiological measures, blood pressure and heart rate revealed statistical significance across the nine measured time periods. Heart rate time periods and race by time periods yielded  $p = .000$  in the within subjects ANOVA. The between subjects ANOVA for blood pressure revealed statistical significance for race ( $p = .000$ ) and condition ( $p = .054$ ). Significant difference emerged for time period and time by race for within subjects ANOVA for blood pressure ( $p = .000$ ).

Hypothesis 3: The third hypothesis that African American males' encounters with law enforcement will result in patterns of physiological reactivity clearly different from white males can be evaluated by a closer inspection of the results of the analyses in Tables 2 through 5. The significant race by period interactions for heart rate and blood pressure indicate a differential response for African American males during the law enforcement encounter. The means for the time periods for heart rate and blood pressure are plotted in Figures 2 and 3. The time periods of interest are #2 (1 minute after onset of stimulus), #3 (2 minutes later), #4 (1 minute later), and #5 (1 minute after cessation). The African American's heart rate continues to increase through this period; their blood pressure until period #4 while European Americans show an increase only until period #3 for both heart rate and blood pressure.

Hypothesis 4: The fourth hypothesis maintained that African American males will show greater increases in reactivity scores and lengthier intervals in returning to baseline following presentation of stimuli than white undergraduate males in corresponding treatment groups. Again, a finer analysis of the significant results for blood pressure and heart rate presented earlier supports this hypothesis. European American males and African American males (Figures 2 and 3) exhibited initial elevations in heart rate and blood pressure at the onset of the study. However, heart rates and blood pressures of African American males were significantly higher than those of European American males. Following period 3 (introduction of the presentation) the physiological reactivity of the two groups began to look remarkably different. Heart rate for European American males progressively lowered following period 3 through the end of the experiment. European American males' heart rate eventually returned to baseline at periods 8 and 9. Heart rate for African American males progressively increased following period 3. Elevations for African American males' heart rate were seen throughout the remainder of the study. These results in Figure 2 support the hypothesis.

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Insert Figure 2 about here

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African American males demonstrated greater blood pressure reactivity than did European American males. The greatest degree of variance between the two groups began at period 3. Following period 3, the blood pressure of European American males progressively lowered eventually returning below the baseline at the onset of the study. African American males' blood pressure continued to increase until period 4 (cessation of the stimulus). Following period 4, African American males' blood pressure progressively decreased, however, it did not return to baseline. The results are presented in Figure 3.

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Insert Figure 3 about here

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## Chapter IV

### Discussion

This study has demonstrated differential physiological reactivity for African Americans in the context of law enforcement. A race X time period interaction occurred: African American male undergraduates exhibited greater increases in blood pressure and heart rate reactivity scores and lengthier intervals in returning to baseline following presentation of stimuli than European Americans undergraduate males in corresponding treatment groups.

In summary, this study confirmed that African American males have generalized fear and feelings of threat associated with law enforcement authority figures. Wall (1992) found that although thousands of police brutality cases have been filed in the Justice Department, they are denied, minimized, or ridiculed by establishment in America. It is hoped that the results of this study will make real the physiological consequences that the police have come to have for African Americans. Wall (1992) states that statistics make it possible to deal with issues of racism in an impersonal and "safe" manner. However, African American juveniles are arrested more frequently than European Americans for robbery, rape, homicide, and aggravated assault (Federal Bureau of Investigation, 1986). They are also more likely than white juveniles to be arrested for other violent crimes,

disorderly conduct, sexual misbehavior, and handling of stolen property (FBI, 1986). At the same time African Americans represent less than one-fifth of the total youth population (Krisberg et al, 1986).

The sense of rejection by society, a sense which dominates African American males, tends to destroy their feelings of trust and responsibility to authority. Thus, a great deal of conflict and antagonism may result for African American males. African American males believe others view them as "invisible" and "faceless." The experience of these stressors create anger and hostility, and the actual experience of hostility towards them cause African American males to begin to expect hostility wherever they go. James Baldwin states that "every American Negro risks having the gates of paranoia close on him." Ralph Ellison (1952) speculated that to be a Negro in the United States, therefore, is to be angry--if not all the time, then most of the time. He states that the anger and hatred are uncomfortable facts that must be addressed to improve Negro-white relations in any capacity. He also argues that for three and a half centuries, Negroes were taught to hide their true feelings. For under slavery, the expression of anger carried the risk of being severely beaten, of being sold way from family and friends, and even of death. Thus, the consequences of anger expression were feared and replaced with submission and humility. Using Ellison's conceptualization of Negro anger, it



is likely that the anger and hate had to find an outlet. This expression was thus inadvertently directed at other Negroes and actually encouraged by the Southern tradition of ignoring Negro criminality as long as white lives or poverty were not involved. Siberman (1964) states that Negroes are losing their fear of "the man"; increasingly, they are directing their anger against its real object.

The crucial question becomes, Who are the real victims in these statistics--those who are brutally victimized by authority or those who rebel against and challenge the authorities that be? It is hoped that this research as well as future research based upon this study help bring to light the kinds of social realities and personal traumas that might account for the ongoing violence, the amorality of some, and the contempt for community norms. This research is also hoped to lead to further research on why many adult African American males have deep rooted frustration, anger, and latent hostility, as well as why many young African American males chose to live outside of the laws and engage in self-destructive behaviors, and/or live deviant life-styles. African American psychiatrists Poussaint (1983), Grier and Cobbs (1968), and Pierce (1970) stress the importance of recognizing the severe and chronic frustrations that African American males experience in American society; as these frustrations are often engendered feelings of aggression and rage --

sometimes directed at others, sometimes at themselves, and sometimes at innocent bystanders.

One plausible psychotherapeutic approach for intervening in the now maladaptive relationship that exists among African American males and law enforcement is psychophysiological psychotherapy which investigates the unconscious mechanisms through which perceptions of threat become transduced into somatic symptoms. Wickramasekera (1986, 1988) describes psychophysiological psychotherapy as a psychotherapy (verbal self-exploration in trusting human relationship) conducted in patient generated low arousal states (low threat perception as indexed by EMG, skin conductance, peripheral skin temperature, or blood volume pulse, etc.) produced by psychophysiological skills like biofeedback training or self-hypnosis. As the effectiveness of many psychotherapeutic approaches has been demonstrated on non African American populations, it may be deemed necessary and appropriate to conceptualize and develop a psychotherapeutic framework relevant for African American individuals, specifically African American males.

Another approach which may be helpful in working with young African American men is to teach them to discriminate between symptoms of arousal (increased blood pressure and heart rate) caused by authority figures in general

and a genuine threat. They need to recognize that not all authority figure are dangerous and survival in our society requires an ability to make such a discrimination.

Historically, human physiological responses have not been a concern in research on perception. More research, specifically longitudinal research is needed to assess the cumulative effects of psychological, physiological, and hyperresponsivity to stressors evident in their existence. One possible future study is to assess if African American males display personality attributes characteristic of predisposition for stress-related illnesses when exposed to chronic stressors such as authority. The differential blood pressure and heart rate responses of the two groups in this study show a greater lability of response of African American men. Perhaps this is part of the source of the greater difference of high blood pressure among African Americans.

Of utmost importance is the fact that many of the issues of this research are not local concerns; they must be addressed on the national agenda, as issues facing African American males are connected with a host of stressors. National legislation must respond creatively to these issues as failure to do so is socially destructive for African American males.

Abraham Maslow (1970) shares an optimistic outlook for human nature. He postulates that all people are inherently good and that they are

fully capable of developing in healthy ways, if circumstances allow expression of their innate potential. Maslow was interested in the factors that motivate behavior and conceptualized motivation in terms of needs that are common to us all. His basic human needs are depicted in order of decreasing strength, are as follows:

Basic physiological needs (e.g., food)

Safety needs (e.g., freedom from fear, physical security)

Belongingness and love needs (e.g., companionship)

Esteem needs (e.g., feeling competent)

Self-actualization needs (e.g., creativity)

Of particular importance to the situation of African American males are Maslow's safety needs including security, protection, dependency, stability, order, structure, limits, and freedom from fear, anxiety, and chaos. The urgency of safety needs are easily seen in African American males' perception of authority. Although for most of us, safety needs are for the most part well satisfied in normal existence, and take a backseat to higher needs, these needs are not met for many African American males and thus become strong motivators.

Maslow believes that people are continually trying to satisfy their needs. When they are successful in satisfying one set of needs, they go on to

the next set of unfulfilled needs. According to this conceptualization, many African American males are relatively "stuck" in the stage of safety needs and may indeed be inhibited from moving through Maslow's hierarchy. It is also possible that needs of belongingness will also impact many African American males if they perceive that they have not earned full citizenship. Siberman (1964) wrote that "For as long as Negroes feel excluded from American society, they are not going to feel bound by its constraints."

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Appendix A  
Instructions to Subjects

General Instructions:

Hello, my name is Adolph Brown, III. I am conducting a research study with Professor Ellen Rosen. The study we are doing is on the relationship between stress and some physiological measures taken during a period of relaxation. What I will need you to do is to sit in that reclining chair and allow me to connect you to that recording device sitting on the table next to the chair. I will be recording your heart rate, blood pressure, respiration, skin conductance, and jaw muscle tension. To do this I will be placing several sensors and an automated blood pressure cuff on your arm and along one side of your jaw. None of these connectors are painful and you will quickly forget that they are even there. Then I will ask you to sit back and relax and listen to a tape while I record your physiological responses. The entire procedure will take no more than one hour. Are you willing to participate. I will explain the study more fully afterward and you can obtain the final results if you wish. O.K.? First please read and fill out the consent form. If you wish to receive a copy of the final results of this study, please write your address in the space provided at the bottom of the form. If you do not want the results leave your address blank. Please note that your responses are anonymous: your name will not be associated with your data at any time or in any way. You may terminate participation in this study at any time.

Please sit down in this chair. [The sensors are attached; as they are attached the experimenter says the appropriate name: e.g., this is the skin conductance sensor, etc.]. Now I am going to turn on the tape. Please sit back, close your eyes, and relax. [The tape is turned on and the recording begins. When the tape is finished] Thank you very much. You may open your eyes now. I have a few forms for you to fill out. Please answer each question as carefully and thoughtfully as possible. [Enter lost confederate and confederate police officer or begin video presentation].

[Confederate police officer: "Hello, I'm officer Owens. Are you a student here? May I see your student identification card? Thank you. I am looking for a possible African American male suspect who is believed to have been

involved in an unlawful act on this campus. Did you see anyone that may have looked suspicious? How tall was he? How much did he weigh? Can you describe his body build? What was his race? What was he wearing? Thank you for your help"].

Thank you very much for participating in our study. I hope you found your experience interesting. The tape you listened to was written as an introductory exercise in self-induced trance. The idea was to follow the imagery to a relaxing scene. The questionnaires which you filled out measured some of your apprehension and anxiety in stressful situations, social anxiety or fear of negative evaluation, and acceptance of authority. Researchers have suggested that individuals with high scores on these measures are likely to experience significant physiological reactivity. With regards to authority, African American males are believed to experience more pronounced psychophysiological reactivity. Are there any questions which you would like to ask? Again, thank you very much for your cooperation and assistance. Please to do not inform others of the conditions involved in this study.



**Appendix B**  
**Authority Behavior Inventory -- ABI**

This questionnaire is intended to assess the frequency with which you behave in certain ways. Answer each question as carefully as you can by placing a number on the space by each one as follows:

- 1 = Never
- 2 = Rarely
- 3 = Occasionally
- 4 = Frequently
- 5 = Very Frequently

- 1. Do you listen attentively to what older people say about how you should behave?
- 2. Do you question the judgment of umpires or referees when you think they have made an incorrect decision?
- 3. When a person in authority whom you trust tells you to do something, do you do it, even though you can't see the reason for it?
- 4. Do you criticize people who are rude to their superiors?
- 5. Do you encourage young people to do what they want to do, even when it is against the wishes of their parents?
- 6. When you go to work, do you dress so as to be acceptable to the people who run the place?
- 7. Do you treat experts with respect even when you don't think much of them personally?
- 8. Do you support left-wing, radical policies?
- 9. Do you take part in demonstrations to show your opposition to policies you do not like?
- 10. Do you express approval for the work of school teachers?
- 11. Do you go to church?
- 12. Do you make fun of the police?
- 13. When things are bad, do you look for guidance from someone wiser than yourself?
- 14. Do you sympathize with rebels?
- 15. When you are in a hurry, do you break the speed limit or encourage your driver to do so, if it seems reasonably safe?
- 16. Do you follow doctor's orders?
- 17. Do you question what you hear on the news?
- 18. Do you cross the road against the pedestrian traffic lights?
- 19. Do you ask for a "second opinion" when you feel uncertain about a doctor's advice?

- 20. Do you stand when they play the national anthem in public?
- 21. Do you express contempt for politicians?
- 22. Do you get annoyed when people sneer at those in authority?
- 23. Do you show special respect for people in high positions?
- 24. Do you speak up against your boss or person in charge when he or she acts unfairly?

Appendix C  
Fear Negative Evaluation -- FNE

For the following statements please indicate how characteristic each is of you using the following rating scale:

- 1 = Not at all characteristic of me
- 2 = Slightly characteristic of me
- 3 = Moderately characteristic of me
- 4 = Very characteristic of me
- 5 = Extremely characteristic of me

Please record your answers in the spaces to the left of the items.

- 1. I worry about what other people will think of me even when I know it doesn't make any difference.
- 2. I am unconcerned even if I know people are forming an unfavorable impression of me.
- 3. I am frequently afraid of other people noticing my shortcomings.
- 4. I rarely worry about what kind of impression I am making on someone.
- 5. I am afraid that people will not approve of me.
- 6. I am afraid that people will find fault with me.
- 7. Other people's opinions of me do not bother me.
- 8. When I am talking to someone, I worry about what they may be thinking about me.
- 9. I am usually worried about what kind of impression I make.
- 10. If I know someone is judging me, it has little effect on me.
- 11. Sometimes I think I am too concerned with what other people think of me.
- 12. I often worry that I will say or do the wrong things.

Appendix D  
Stressful Situations Questionnaire -- SSQ

Everyone is faced with situations in life that make them feel more or less apprehensive. Below is a list of situations which you may have experienced, or might be placed in some day. First, read through the entire list; then, for each situation, indicate at left the number that best describes the degree of apprehensiveness or concern you have felt or believe you would feel if in that situation. Do not skip any items. Work rapidly and put down your first impression.

- 1 = None at all
- 2 = Slight
- 3 = Moderate
- 4 = Considerate
- 5 = Extreme

- 1. Going on a blind date.
- 2. Asking someone for a date to a party.
- 3. Seeing someone bleed profusely from a cut arm.
- 4. Asking a teacher to clarify an assignment in class.
- 5. Giving a speech in front of class.
- 6. Introducing a friend and forgetting his name.
- 7. Putting iodine on an open cut.
- 8. Having someone angry at you.
- 9. Taking a test that you expect to fail.
- 10. Seeing a dog run over by a car.
- 11. Walking in a slum alone at night.
- 12. Giving blood at the Blood Bank.
- 13. Riding in an airplane in a storm.
- 14. Being present at an operation or watching one in a movie.
- 15. Belching aloud in class.
- 16. Having a tooth cavity filled.
- 17. Climbing too steep a mountain.
- 18. Paying respects at the open coffin of an acquaintance.
- 19. Being refused membership in a social club.
- 20. Asking a question in class.
- 21. Doing poorly in a course that seems easy to others.
- 22. Reciting a poem in class.
- 23. Having your date leave a dance with someone else.
- 24. Reciting in language class.
- 25. Finding the questions on a test extremely difficult.

- 26. Having to ask for money that was borrowed from you.
- 27. Forgetting lines in a school play.
- 28. Riding a car going 95 miles per hour.
- 29. Asking a teacher to explain the grading of your test.
- 30. Getting hurt in a fight.
- 31. Telling an uninvited guest to leave a party.
- 32. Passing a very bad traffic accident.
- 33. Being the only person at a party not dressed up.
- 34. Introducing yourself to someone attractive of the opposite sex.
- 35. Spilling your drink on yourself at a formal dinner party.
- 36. Having an interview for a job.
- 37. Volunteering an answer to a question in class.
- 38. Getting back a test you think you may have failed.
- 39. Skiing out of control.
- 40. Asking the person behind you to stop kicking your seat.
- 41. Kissing a date for the first time.
- 42. Asking a teacher to explain a question during a test.
- 43. Asking people in a study room to make less noise.
- 44. Being in a difficult course for which you have inadequate background.
- 45. Participating in a psychology experiment in which you receive electric shock.



Appendix E  
Background Data Questionnaire

**PLEASE RECORD THE APPROPRIATE NUMBER ON THE BLANK LINE BESIDE EACH ITEM ON THIS FORM.**

\_\_ 1. Age:

1. 18-19
2. 20-21
3. 22-24
4. 25 and over

\_\_ 2. Year in college:

1. Freshman
2. Sophomore
3. Junior
4. Senior

\_\_ 3. The area in which you lived most of your life:

1. urban
2. suburban
3. rural

\_\_ 4. Primary music listening preference:

\_\_ Secondary music listening preference:

1. jazz
2. pop
3. gangsta rap
4. rhythm & blues
5. country & western
6. hip hop
7. classical
8. rock & roll
9. reggae
10. other

\_\_ 5. Parents' economic status (annual income):

1. Less than \$15,000
2. \$15,000-29,999
3. \$30,000-44,999
4. \$45,000 and over

\_\_ 6. Number of prior encounters with law enforcement:

1. 1-2
2. 2-3
3. 3-4
4. 4+

\_\_ 7. Race:

1. black
2. white
3. other

APPENDIX F  
Consent Form

**COLLEGE OF WILLIAM AND MARY**  
**PSYCHOLOGY DEPARTMENT CONSENT FORM**

The general nature of this study of the psychophysiological correlates of stress and relaxation conducted by Adolph Brown, III has been explained to me. I understand that I will be asked to be connected to nonpainful sensors used to record my heart rate, blood pressure, respiration, skin conductance, jaw muscle tension, and skin temperature during the presentation of stimulus materials. I further understand that my responses will be confidential and that my name will not be associated with any results of this study. I know that I may refuse to answer any question asked and that I may discontinue participation at any time. I also understand that any grade, payment, or credit for participation will not be affected by my responses or by my exercising any of my rights. I am aware that I may report dissatisfactions with any aspect of this experiment to the Psychology Department Chair. I am aware that I must be at least 18 years of age to participate. My signature below signifies my voluntary participation in this project.

---

Date

---

Signature

Correlations between ABI, SSQ, FNE, and Physiological Measures  
(N=44)

Measures	Period	ABI	SSQ	FNE
GSR/SCL	11	.233	.138	-.172
	12	-.143	.114	.177
	13	-.581*	.212	.506*
	14	.025	.213	.231
	15	-.723*	.127	-.155
	16	.181*	.123	.657*
	17	-.747*	.178	.700*
EMG	18	-.705*	.131	.664*
	19	-.724*	.190	.716*
	21	-.247	-.086	.224
	22	-.171	-.090	.162
	23	-.465*	-.050	.360
	24	-.010	.172	.180
	25	-.653*	-.181	-.081
	26	.347	.161	.570*
	27	-.721*	.062	.640*
	28	-.074	.146	.172
RSP	29	-.759	.048	.673*
	31	-.091	-.160	.083
	32	.017	-.266*	.225
	33	-.489	.324	.365
	34	.465	.543	.345
	35	-.012	-.214	-.229
	36	-.436*	.038	.375
HR	37	-.416*	.178	.584*
	38	-.507*	.130	.550*
	39	-.620*	.179	.651*
	41	-.214*	.405*	.432*
	42	-.645*	.398*	.345*
	43	-.437*	.411*	.423*
	44	-.324*	.432*	.543*
	45	-.550*	.478*	.476*
	46	-.243*	.412*	.230*
	47	-.605*	.427*	.276*
BPM	48	-.765*	.431*	.332*
	49	-.456*	.456*	.342*
	51	-.294	.470*	.371
	52	-.324	.404*	.372
	53	-.400*	.464*	.454*
	54	-.435*	.432*	.376*
	55	-.478*	.459*	.508*
	56	-.506*	.460*	.549*
	57	-.516*	.453*	.564*
	58	-.553*	.443*	.593*
	59	-.569*	.439*	.618*

\*  $p < .05$

Table 2

Summary table for ANOVA on GSR/SCL across the nine measured time periods

Between Subjects

	MS	df	F	P
Race	1689.51	1	3.62	.065
Condition	312.71	2	.67	.517
Race X Condition	160.91	2	.345	.710
Error	466.27	38		

Summary table for ANOVA on GSR/SCL across the nine measured time periods

Within Subjects

	MS	df	F	P
Time Period	633.47	8	1.39	.20
Time X Race	399.70	8	.876	.54
Time X Condition	324.08	16	.712	.781
Time X Race X Condition	318.79	16	.701	.793
Error	455.013	304		

Table 3

Summary table for ANOVA on EMG across the nine measured time periods

Between Subjects

	MS	df	F	P
Race	2.38	1	.261	.61
Condition	4.79	2	.525	.60
Race X Condition	6.47	2	.709	.498
Error	9.12	38		

Within Subjects

	MS	df	F	P
Time Period	5.92	8	.643	.741
Period X Race	5.65	8	.614	.77
Period X Condition	5.66	16	.615	.87
Period X Race X Condition	5.78	16	.628	.86
Error	9.20	304		



Table 4

Summary table for ANOVA on heartrate across the nine measured time periods

## Between Subjects

	MS	df	F	P
Race	1689.51	1	3.623	.065
Condition	312.71	2	.671	.517
Race X Condition	160.91	2	.345	.710
Error	466.27	38		

## Within Subjects

	MS	df	F	P
Time Period	1084.85	8	38.88	.000
Time X Race	916.18	8	32.83	.000
Time X Condition	15.61	16	.56	.913
Time X Race X Condition	36.02	16	1.29	.201
Error	27.91	304		

Table 5

Summary table for ANOVA on BMP across the nine measured time periods

## Between Subjects

	MS	df	F	P
Race	940165.1	1	29.51	.000
Condition	100397.1	2	3.15	.054
Race X Condition	42598.69	2	1.34	.275
Error	31854.62	38		

## Within Subjects

	MS	df	F	P
Time Period	9932.41	8	14.42	.000
Time X Race	6874.12	8	9.98	.000
Time X Condition	399.76	16	.58	.898
Time X Race X Condition	508.37	16	.74	.754
Error	688.98	304		

Figure 2

Mean heart rate for African American and European American males across the nine intervals

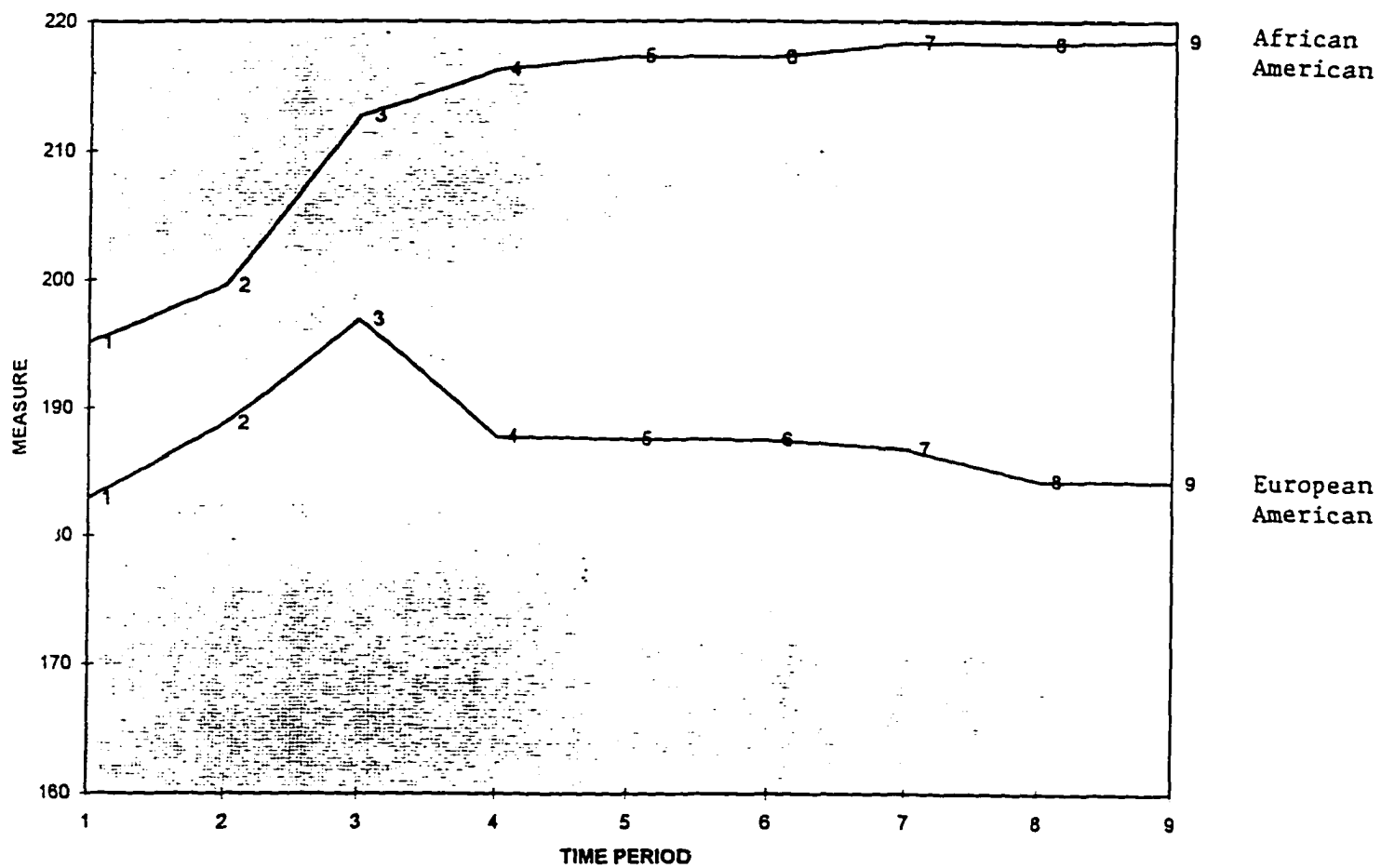


Figure 3

Mean blood pressure for African American and European American males across the nine intervals

