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PSYCHOLOGICAL AND SOCIAL PREDICTORS OF HEALTH STATUS AMONG BLACK AND WHITE OLDER ADULTS

A DISSERTATION
Presented in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the Graduate School of The Ohio State University

By

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2000

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The primary purpose of this study was to investigate the relationship among health and various psycho-social variables and to identify predictors of health among black and white older adults. Accordingly, this study evaluated a model that hypothesized relationships among gender, age, race, socio-economic status (SES), multi-dimensional health locus of control, anxiety, depression, social support, health behaviors and health status.

Eighty-nine older adults, ranging from age 56-92, completed psychological and social questionnaires: 32 were black, 56 were white, and 1 other. The standardized questionnaires assessed anxiety, depression, social support, multi-dimensional health locus of control, SES, health behaviors and health status. Participants were recruited from a retirement home and several community based organizations. Participants were invited to participate in a study and attend a seminar, "maximizing your retirement years."

This study found that anxious and depressed subjects had less social support and experienced poorer health. More depressed participants were less likely to endorse internal attributions, and more likely to have lower SES. Participants with lower SES
were more likely to experience poorer health, while individuals with higher SES were more likely to have higher levels of social support and endorse an internal locus of control. The common predictors of health status in the total sample were depression, body mass index (BMI), and age. This study also identified unique patterns of health predictors for black and white older adults. Among whites locus of control may be relevant, while among blacks psycho-social/financial factors (e.g., SES) may be more relevant predictors of health status. At the same time, while blacks had lower SES than whites, race did not directly influence health status. Accordingly, this study found that including racially and socio-economically diverse participants reveals unique, important within and between group differences.
Dedicated to my friends, my family, and God. Thanks for encouraging,
believing in and supporting me more than you knew I could ever repay.
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CHAPTER 1
INTRODUCTION

Numerous studies over the last few decades have investigated the influence of various personality, behavioral, and socio-cultural factors on health status including, anger and anxiety (e.g., Alexander, 1939; Robinson, 1962; Schalling & Svensson, 1983), depression and neuroticism (e.g., Pastor, Salas, Lopez, Rodriguez, Sanchez, & Pascual, 1993), attributional style, optimism and pessimism (e.g., Robinson-Whelen, Kim, MacCallum, & Kiecolt-Glaser, 1997), locus of control (e.g., Rotter, 1966; Wallston, Wallston, & DeVellis, 1978; Benassi, Sweeney, & Dufour, 1988), behavioral adjustment to illness (e.g., Bressi, Capra, Brambilla, Deliliers, Solgio, & Invernizzi, 1995), health behaviors and beliefs (Schwarzer, Jerusalem, & Kleine, 1990), race, socioeconomic status (SES), and gender (e.g., Ulbrich, Warheit, & Zimmerman, 1989; & Reskin, & Coverman, 1985). Studies suggest that shorter life span is associated with negative mood, pessimism, negative health behaviors, minority status, low SES, and female gender (Friedman, Tucker, & Riese, 1995).

These data have stimulated additional studies of the interactive and cumulative effects of psychosocial factors on health status (Ulbrich et al. 1989; Schwarzer et al. 1989; Ranchor & Sanderman, 1991; Friedman et al. 1995). Although studies have established a link between various psychosocial phenomena and health, no model has
emerged to explain interactive effects of health behaviors, personality, and affective
distress in predicting health status. In particular, it is important to evaluate predictors of
health status among older adults, who are more likely to experience chronic illness and
other health problems.

Health and Older Adults

Whereas in 1776 only one American out of 50 was 65 years or older, in 1990 one
American out of 8 was 65 years or older. By the year 2050, it is estimated that one
American in 5 will be 65 years or older (Schick, & Schick, 1994). The rapid growth of
the older segment of the population is most graphically captured by the fact that
between 1980 and 1990 America's older adult population grew by 22% (from 25.5 to
31.2 million), while the total population increased by only 9.3%. Accordingly, this is
one of the fastest growing segments of America's population.

However, as more Americans live longer, they also are at risk for more chronic
diseases and disabilities. For example, 80% of America's older adults reported at least
one chronic condition, and 20% reported suffering from at least a mild degree of
disability (Schick et al. 1994). At the same time, almost 1 in 4 older adults assessed
their health status as good or excellent. Factors associated with health status among
older adults include: attributional style such as optimism and pessimism (e.g.,
Robinson-Whelen, Kim, MacCallum, & Kiecolt-Glaser, 1997), powerlessness (e.g.,
Seeman & Lewis, 1995), locus of control (e.g., Pilisuck, Montgomery, Parks, &
Acredolo, 1993), health locus of control and anxiety (Schwarzer, Jerusalem and Kleine,
1990), and socio-demographic status (e.g., Galanos, Strauss, & Pieper, 1994). Only one previous study (Seeman & Lewis, 1995) evaluated the interactive effects of psychological distress, personality, health behavior, and demographic factors on health status of older adults. This was limited, however, in that the sample was entirely Caucasian and from similar socio-economic backgrounds. Three psychological variables that have received considerable attention in previous studies examining predictors of health include locus of control, anxiety and depression. These psychological variables have also have been related to health outcomes and vice-versa.

Locus of Control

The construct known as locus of control (LOC) was originally conceptualized by Rotter (1966), who developed the original 23-item scale assessing internal versus external locus of control. Individuals high in internal locus of control were said to be potent, assertive, and effective; whereas, individuals with a more external LOC were held to be helpless, retiring, and incompetent (Lefcourt, 1981). In recent years, the locus of control construct has been extended to the health arena via the Multi-dimensional Health Locus of Control inventory (MHLC; Wallston, Wallston, & DeVellis, 1978), which was developed as a health-specific measure of attributions regarding health outcomes. The 18-item MHLC assesses three dimensions of locus of control (6 items per factor, with each item rated on a 6-point Likert scale). Internal attributions indicate the extent to which health outcomes are attributed to the "self." and external factors indicate the extent to which health outcomes are attributed to either
"chance" or "powerful others". Higher scores on the internal dimension reflect self-attributions for health outcomes. High scores on the "powerful others" subscale reflect a belief that health outcomes are influenced by others in authority (e.g., health-care personnel), and higher scores on the "chance" dimension reflect a belief that health-related outcomes are determined by coincidence, destiny, or fate.

Since preventive medicine is predicated on the premise that individuals can alter risk of disease through control of behavior, MHLC has been found to be particularly relevant to the study of preventive health behaviors and has been utilized to predict attitudinal and behavioral responses to both educational interventions and health outcomes (Lewis, 1987). The MHLC has been utilized in a wide variety of health related investigations including studies of adapting to chronic disease (Affleck, Tennen, Pfeiffer, & Fifield, 1987), arthritis (Pastor, Salas, Lopez, Rodriguez, Sanchez, & Pascual, 1993), morphine control during patient-controlled analgesia (Reynart, Janne, Delire, Pirrand, Randour, & Installe, 1995), recovery from abdominal surgery (Manyande & Salmon, 1992), cancer treatment compliance oriented behavioral changes (Jepson, Kessler, Portnoy, & Gibbs, 1990), satisfaction among symptomatic HIV-infected patients (Stein, Fleishman, Mor, & Dresser, 1993), and craniomandibular dysfunction (Leeuw, Steenks, Ros, Bosman, Winnubst, & Scholte, 1994). Presently, the MHLC construct has become so highly regarded that some authors have suggested that the clinical efficacy of a treatment program may be most accurately gauged by assessment of locus of control (e.g., Reynart et al. 1995), because treatment outcomes
are more likely to be positive among patients with higher internal locus of control attributions.

Although MHLC, anxiety, and depression have been firmly linked to health status, studies investigating these psychological variables and causal pathways by which various psychosocial variables influence health have yielded inconsistent findings (Friedman, Tucker, & Reise, 1995). For example, in Benassi, Sweeney and Defour's, (1988) meta-analysis unequivocally found that external LOC was significantly associated with depression; however, Hoffart and Martinsen (1991) did not find that external LOC was significantly associated with depression. Similarly, numerous studies (Affleck, Tennen, Pfeiffer, & Fifield, 1987; Pastor. Salas. Lopez. Rodriguez, Sanchez. & Pascual. 1993; and Capra, Brambilla, Deliliers, Soligo, & Invernizzi. 1995) have found MHLC to be a reliable predictor of health behaviors; however, Marshall (1991) did not find that HLOC was reliable predictor of health behaviors. Finally, Hale and Cochran (1986) found that locus of control was positively associated with psychological distress for a sample of young, White college students; however, this association was not obtained for either young, Black men or for older adults (regardless of race). Hence, the relationship of locus of control with health status requires further investigation, as previous findings may not be generalizeable across race.

Anxiety

The link between anxiety and health status has received considerable attention since Alexander introduced his psychosomatic hypothesis of hypertension in the 1930s.
Alexander suggested that psychological factors—more specifically, anxiety, and/or anger—may lead to blood pressure elevation, and the development of and/or maintenance of hypertension. Subsequently, a wealth of evidence (both experimental and clinical) has emerged supporting an association between anxiety and hypertension (Robinson, 1962; Robinson, 1964; Mills, 1962; Sainsbury, 1960; Schalling & Svensson, 1983; Byrne, 1981). Recently, it has been estimated that 30 to 40% of the general population suffered from levels of anxiety so significant that clinical intervention would be useful (Barlow, 1988).

In addition, anxiety is especially relevant both because it can be experienced in an acute and chronic manner, and because it may have a physiological link to health status. At least one hypothetical mechanism explaining the relationship of health status and anxiety might be cortisol, which has been associated with both hypertension and higher anxiety levels. Studies among human subjects have shown that cortisol administration increases cardiac output. Moreover, excessive cortisol levels, or tissue sensitivity to cortisol, or both, may be responsible for the development of hypertension in some situations (Witworth, Brown, Kelly, & Williamson, 1995; Walker, Best, Cedric, Shackelton, Padfield, & Edwards, 1996). Similarly, there is considerable evidence that cortisol levels rise acutely in anxiety provoking situations, and usually return to normal levels once the individual habituates to the stressor (Rose, 1980; Miyabo, Asalo, & Mizushima, 1979; Bohnen, Nicholson, Sulon, & Jolles, 1991). Hence, anxiety may be important in the relationship of psychosocial functioning and
health.

Typically anxiety is described in the literature as "a diffuse cognitive-affective structure consisting of a negative feedback cycle characterized to varying degrees by components of high negative affect; a sense of both internal and external events proceeding in an unpredictable, uncontrollable fashion; and maladaptive shifts in attention" (Barlow, 1988). In other words, anxiety may manifest itself as the expression of negative thoughts or behavior; irrational, incorrigible and maladaptive negative interpretation of both bodily and environmental stimuli; and subsequent maladaptive shifts in attention towards anxiety provoking stimuli/events.

Depression

There is an abundance of evidence supporting the association between depression and health (e.g., Hamm, Bazargan, and Barbre, 1993; Colenda, and Smith, 1993; Bazargan, 1996). Recently, the National Comorbidity Survey reported that, in the general population, lifetime prevalence of clinical depression was 17% (Blazer, Kessler, McGonagle, & Swartz, 1994), with major depressive disorder being twice as common in women as in men. At the same time, numerous studies have reported that 40 - 45% of elderly medical patients endorsed "depressive symptoms," a possible sub-clinical level of depression (Bond, Brooks, Carstairs, & Giles, 1993; Walker, Novack, & Kaiser, 1987; Colenda & Smith, 1992; and Latimer, & Sheahan, 1998). While some argue that the classification of depression in older adults is unreliable (Livingston and Hinchliffe, 1993), others argue that the introduction of assessment criteria based on
depressive symptoms (instead of diagnostic criteria from the Diagnostic and Statistical Manual of Mental Disorders) has increased the reliability of prevalence estimates of sub-clinical depression in the elderly. Accordingly, Gurland and Wilder (1984) suggest employing a depressive symptoms-based measure when assessing depression in elderly medical patients.

Causality and co-morbidity (with anxiety and other psychosocial factors) also represent potential confounds when assessing depression in the elderly (Murphy, 1982). It is widely recognized that there may be a bi-directional relationship between depression and poor health (e.g., Palmore & Luikart, 1972; & Murphy, 1980). In addition, co-morbidity among depression and anxiety in the general population is widely recognized (e.g., Liebowitz, Hollander, & Schneier, 1990), and both have been associated with chronic illness in older adults (Kay & Bergmann, 1966; Gurland, 1983; & Ormel, Kempen, Phenninx, Brilman, Beekman, & Sonderen, 1997). Classifying these disorders, however, is difficult because symptoms of depression and anxiety overlap. Further, co-current medical treatment may result in usage of other psychotropic medications that may affect anxiety and mood, which may exacerbate problems for older adults by contributing to symptom formation (Beardsley, Larson, & Burns, 1990). Finally, it is widely held that depression is mediated in part by social support across the life span, and that lower levels of social support are correlated with poorer health outcomes (e.g., Lin & Ensel, 1986; and Antonucci, 1985).
Gender, Race, and SES

When addressing the problem underlying inconsistent findings yielded by studies that investigate the relationship and/or potential causal pathways by which psychosocial variables influence health status, there are at least two plausible explanations that merit further consideration. First, it may be the case that these constructs were erroneously operationalized. That is, it may be that locus of control and anxiety cannot be either consistently or accurately gauged over a wide variety of situations. However, given the reported high reliability and validity of measures used to evaluate these constructs, and the fact that large numbers of studies have found strong associations of anxiety and locus of control with health status, it seems unlikely that inconsistencies are entirely attributable to how these constructs were conceptualized. Alternatively, it may be that researchers have unwittingly overlooked several within-group differences that could potentially contribute to these inconsistencies. The latter theory is supported by various authors (e.g., Joiner, & Blalock, 1995; Kessler, 1994; and Galanos, Strauss, & Pieper, 1994; Seeman & Lewis, 1995; Speilberger, Gorsuch, & Lushene, 1970) who have identified gender, race, socio-economic status (SES), and type of anxiety measure as factors that potentially result in significant within-group differences that could contribute to inconsistent findings.

Gender. Although few studies have evaluated gender differences in MHLC (e.g., Pilisuk, Montgomery, Parks & Acredolo, 1993), significant interactions between
MHLC and gender have been found (Molinari & Khanna, 1981). Specifically, women were significantly more likely to demonstrate an external LOC, while men were significantly more likely to exhibit an internal LOC. Equally important, is the fact that there is a significantly higher prevalence of self-reported anxiety in women compared to men (e.g., Joiner, & Blalock, 1995; Ochoa, Beck, & Steer, 1992), and that women are significantly more likely to be clinically diagnosed with an anxiety disorder then men (Kessler, 1994). There are three hypotheses that attempt to explain the phenomena that underlie this gender difference. First, the "artifact" hypothesis suggests that this difference in anxiety prevalence may be the result of women being more adept at and more likely to report their psychological distress then men (Weissman & Klerman, 1977). Second, the "biological" hypothesis suggests that women are at greater risk for psychological distress than men because of physiological differences associated with their reproductive cycles (Nolen-Hoeksema, 1987). Third, the "psychosocial" hypothesis suggests that because women are disproportionately more likely to experience lower SES than men, they are more likely to experience higher levels of psychological distress (Weisman et al. 1985). Any of these three factors may contribute to gender differences in locus of control and anxiety prevalence.

There are methodological factors that may contribute to inconsistent findings regarding gender differences. For example, while some researchers directly matched subjects by gender (e.g., Coelho, Hughes, Fonseca, & Bond, 1989; Somova, Connolly, & Diara, 1994; Baer, Collins, Bourianoff, & Ketchel, 1979), many researchers did not
control for the impact of gender (e.g., Lyketsos, Arapakis, Psaras, & Blackburn, 1982; Santonastaso, Ambrosio, & Zamboni, 1984), and others may have inadvertently controlled for gender, by exclusively utilizing same gender subjects (e.g., Linden & Feuerstein, 1983; Kopp & Kranyi, 1982; Steptoe, Melville, & Ross, 1982). In the latter case (where frequently the studies utilize all male subjects), the results may not be generalizable to females.

In addition, gender differences in health reports are well documented. For example, although women have a life expectancy seven years longer than men (Verbrugge, 1985), numerous studies have shown that women report higher rates of illness than men at all ages (e.g., Hunt, McEwan, & McKenna, 1985; and Baxter, 1985). Moreover, many of these health problems disproportionately effect women (e.g., for women under 65, breast cancer is the second highest cause of death; and women are twice as likely as men to experience osteoarthritis, abdominal pain, cystitis and urinary infection, Miles, 1991). Hence, it may be the case that some of these inconsistent findings have been influenced by researchers' methodological decisions regarding the gender composition of their subject pool.

**Race.** Race has been found to influence locus of control, anxiety level, depression and general psychological functioning. For example, Aruffo, Pavlik, Coverdale, & Vallbona, (1993) have found that both Hispanics and Blacks endorse significantly more external MHLC items than do Whites. In fact, the relationship between racial group differences and mental health has become so salient and
consistently replicated that race has been identified as a central issue in epidemiological research (e.g., Ulbrich, Warheit, & Zimmerman, 1989). Likewise, differences in the health status of Blacks compared to Whites are well established. For example, the average life expectancy for Black Americans is 69.3 years, whereas life expectancy for White Americans is 76.3 years (Flack, Amaro, Jenkins, Kunitz, Levy, Mixon, & Yu, 1995). Further, the National Center for Health Statistics (1991) found that 66% more Blacks than Whites reported an inability to maintain major activity because of chronic health conditions.

Nonetheless, research that has considered the impact of race has yielded inconsistent findings. For example, while many studies have found significant racial differences for psychological distress (Comstock & Helsing, 1976; Neff, 1984; Neff & Husaini, 1980), other studies have not found such racial differences in psychological distress (e.g., Antunes, Gordon, Gaitz, & Scott, 1974; Carr & Krause, 1978; Aneshensel, Clark, & Frerichs, 1983). A closer investigation of these studies indicates that those who found a significant association between racial differences and psychological distress controlled for socioeconomic status (SES; Comstock et al. 1976; Neff, 1984; Neff & Husaini, 1980; Roberts, Stevenson, & Breslau, 1981), suggesting that racial differences may be spuriously related to psychological distress, as a consequence of SES.

**Socioeconomic Status.** SES has frequently been defined as "a composite measure that typically incorporates economic status, as measured by income; social status, as
measured by education; and work status, as measured by occupation” (Dutton & Levine, 1989, p. 30). In a culmination of eight epidemiological surveys conducted between 1957 and 1976, Kessler and Neighbors (1986) suggested that race and SES actually have an interactive effect on psychological distress. Specifically, they found a substantial racial difference in distress among people with lower SES, and a convergence in distress levels across races for individuals with higher SES. In addition, they demonstrated that race and SES actually have an interactive and potentiating effect on psychological distress. That is, they found substantial racial group differences in distress among individuals with lower SES (Black subjects with less distress than Whites), while they did not find significant racial group differences in distress in individuals with higher SES.

Perhaps some insight into these racial group differences has been provided by earlier analyses of racial differences. First, Kessler (1979) suggested that differences in psychological distress between Whites and non-Whites may be the result of non-Whites having greater exposure to stressful experiences, as opposed to non-Whites having a greater vulnerability to the impact of stressors. In fact, Kessler found comparable stressors had more impact on Whites than on non-Whites. Next, these findings have been extended by Ulbrich, Warheit, and Zimmerman (1989), who found that lower-SES Blacks were more vulnerable than lower-SES Whites to the impact of undesirable events. However, lower-SES Blacks were less vulnerable to the psychological impact of these undesirable economic events than their lower-SES white counterparts or
middle/upper income Blacks. Ultimately, Ulbrich et al. (1989) suggested that lower-SES Blacks are more emotionally resilient in the face of poverty and are psychologically less vulnerable than others to economic problems/stressors because they have developed various adaptive emotional mechanisms (e.g., spiritual and social-support), which have enabled them to cope with the debilitating effects of such economic strains.

In addition to SES having a unique relationship with race, several reviews have noted that SES is inversely associated with health status (e.g., Antonovsky, 1967; Illsley & Baker, 1991). This inverse relationship between health status and SES has been most pronounced in Blacks (e.g., Gerber et al., 1991) and Latinos (e.g., Espino & Maldonado, 1990), who obtain higher scores than Whites on health-symptom related surveys (e.g., Galanos, Strauss, & Pieper, 1994; Seeman & Lewis, 1995; etc.). While genetic predisposition (e.g., vulnerability to hypertension) may, at least to some extent, underlie the disparity in health status between Black and White populations, other factors also appear to be involved in the etiology and distribution of various health and psychological disorders. For example, health behaviors have been reported to increase exposure to psychological stressors (e.g., Gerber et al., 1991; Espino et al., 1990), and sociocultural factors have been hypothesized to influence health status (e.g., Palinkas & Colcord, 1985).

Two sociocultural factors are often identified as being responsible for these diverse patterns of risk for health related problems between Blacks and Whites
One hypothesized factor is the differential access to and utilization of health care facilities. The impact of Blacks under-utilizing health care facilities could have the joint effect of lowering incidence and prevalence rates, while simultaneously increasing the number of severe disease episodes among Blacks compared to Whites. For instance, Zola (1972) estimated that between 70 to 90% of all self-recognized episodes of sickness among Blacks in the United States are managed exclusively outside the formal health care system. Moreover, given that prevalence rates for various health problems are often obtained by surveying hospital admission records, a spurious association could be obtained between severe medical problems and racial group status if the racial groups under study do not share the same probability of seeking medical attention for both major and minor health problems. Thus, if minorities only seek medical attention for severe medical problems, they may erroneously appear to have a disproportionately high risk for minor medical problems that prevented them from becoming more severe (Berkson, 1946). This theory is supported by a recent study which found 21% of Blacks did not report employing a regular source of medical care, and 21.2% of all Black patient visits to a hospital or clinic consisted of a visit to the emergency room (Flack et al., 1995).

A second sociocultural factor contributing to different health risks among racial groups is the stress-related nature of the disorders that are disproportionately experienced by non-Whites. For example, diseases such as hypertension, mental disorders, diabetes, and asthma are believed to be aggravated by psycho-social and
environmental stressors (Palinkas & Colcord, 1985). The high rates of stress-related disorders among Blacks in the United States are usually attributed to a disadvantaged position in the social structure and the chronic social stressors (e.g., prejudice, discrimination, and low SES) associated with that position. Such a theory is supported by findings that racial distinctions tend to disappear when SES is controlled in statistical analyses (Kessler & Neighbors, 1986). Further, Adler et al. (1994) have reported that the association of SES and health occurs at every level of the SES hierarchy, and not simply below the threshold of poverty.

Assuming that SES and health are causally related, it remains unclear which interpretation best explains this relationship. Does SES cause poorer health, or are those with poorer health more likely to be relegated to lower SES? The "causal" and "selection" hypotheses represent two competing theories that have been widely used to address the causality question. The causal hypothesis assumes that lower SES leads to poorer health; whereas, the selection hypothesis assumes that lower SES is the consequence rather than the cause of poorer health (Townsend and Davidson, 1982). Both explanations have been empirically supported (e.g., Wilkinson, 1987). In either situation, it may be the case that inconsistent findings in this area might, at least in part, reflect interaction between both race and SES and race and health status.

**Health Behaviors**

Various health behaviors (e.g., smoking, alcohol consumption, physical exercise, and obesity) have been uniquely associated with health status (Adelstein,
1980; and Centers for Disease Control, 1987) and may have a potentiating effect on various psychosocial variables that have an impact on health status. For example, smoking is a well-established risk factor for coronary heart disease and lung cancer (Schwarzer, Jerusalem, & Kleine, 1990; Adelstein, 1980; and Centers for Disease Control, 1987). Similarly, lack of physical activity has been shown to be one co-determinant of coronary heart disease and of lowered health status in general (Schwarzer et al. 1990). Lack of physical activity has both a direct influence on health status and an indirect influence, insofar as it is associated with obesity. Furthermore, exercise is a protective health behavior that also improves self-esteem and might lower anxiety and depression (Long, 1984, 1985; McCann & Holmes, 1984; and Sonstroem, 1984). Various researchers have found that lack of physical activity and obesity are both positively associated with poor health outcomes (e.g., Paffenbarger, Hyde, Wing & Hsieh, 1986).

However, unlike lack of physical activity and smoking, the relationship between alcohol consumption and health outcomes is not uniform across diseases. For example, low levels of alcohol consumption (e.g., a daily glass of red wine) are associated with a decreased risk for a coronary event, while alcohol abuse increases risk of cirrhosis of the liver and may increase risk of some cancers (e.g., cancer of the larynx), and consuming moderate levels of alcohol has been linked to increased risk for coronary heart disease (Adler et al. 1994). For these reasons, interpreting the role of alcohol intake as a risk factor is not as clear as interpreting the impact of smoking and lack of
physical activity.

Adoption of health behaviors may also be uniquely influenced by SES, locus of control, anxiety and depression. For example, both cigarette smoking and physical activity level have been positively associated with SES (Matthews, Kelsey, Meilahn, Kuller, & Wing, 1989; and the U.S. Department of Health and Human Services [DHHS], 1989). Likewise, several studies have identified unique relationships between health behaviors and locus of control. For example, Dean and Edwards (1990) found that individuals with an internal health locus of control (IHLC) were most likely to quit smoking, and were least likely to be smokers. Similarly, several researchers have found anxiety and depression to be one of the most reliable personality predictors of alcohol consumption (Semmer, Lippert, & Rieger-Ndakorerwa, 1986; Seiber & Angst, 1981; and Slochower, 1983) demonstrated that overweight persons eat more in anxiety provoking situations, suggesting that food intake may also be seen as a means of coping with stress. However, several studies have found a positive correlation between alcohol consumption and SES (Cauley, Donfield, Laporte, & Warhfig, 1991; Marmot, Smith, Stansfield, Patel, North, Head, White, Brunner, & Finney, 1991; Matthews, Kelsey, Meilahn, Kuller, & Wing, 1989). Overall, studies of health behaviors raise many questions regarding the interaction of psychosocial factors with health status. One hypothesis is that negative health behaviors may mediate the association of negative psychosocial phenomena with health status.
Prior Investigations of Health Status Predictors

A literature search of studies investigating the relationship between health status and anxiety and locus of control revealed several studies. First, Schwarzer, Jerusalem and Kleine (1990) investigated personality and behavioral predictors of health problems in a sample of 97 White, male adolescents (age: 17 - 22 years). This longitudinal study considered the impact of HLOC, anxiety, and health behaviors in predicting later health outcomes. Schwarzer et al. (1990) found anxiety was the most powerful single predictor of subsequent reports of health complaints, that those with an external health locus of control were more likely to report subsequent health complaints, and that risk behavior (especially alcohol consumption) later contributed to health complaints. However, Schwarzer et al. utilized an all-White, adolescent population, and did not consider the impact of SES or social support. A second study (Pilisuk, Montgomery, Parks, & Acredolo, 1993) was conducted in an elderly population, and considered the impact of locus of control, life stress, and social support on health status. However, the sample was 83% White and was comprised of a relatively homogeneous SES population (e.g., all were from middle- and working-class backgrounds). Furthermore, these authors did not consider the impact of anxiety, depression or health behaviors.

One study of powerlessness, health status, and mortality among older white men and women (Seeman & Lewis, 1995) found an association over time between the sense of powerlessness and deteriorating health status. Specifically, Seeman and Lewis found
that (1) with each year increase in age, powerlessness was significantly associated with
greater activity limits and psychosocial symptoms (with appropriate controls for
background factors and for prior health); (2) powerlessness was a prospective
predictor, since high initial powerlessness scores were associated with health problems
observed five and ten years later (with initial health controlled); (3) increasing
powerlessness accompanied subsequent deterioration in health (with stringent controls
on prior health); and (4) mortality for men was associated with initially high
powerlessness scores (controlling for prior health).

The findings of Seeman and Lewis (1995) further justify the need for a study
that investigates the psycho-social predictors of subsequent health status and mortality.
These findings could be extended by using the MHLC, which was not available during
the collection of the Seeman and Lewis data, and will provide an indicator of health-
specific attributions of control. The current study also specifically investigates anxiety,
depression, social support, considers the impact of race, SES, and health behaviors.
Hence, the study will be among the first to consider the joint impact of anxiety,
depression, health locus of control, social support, race, gender, SES and health
behaviors influence on health status utilizing an elderly population of Black and White
subjects.

Hypothetical Model of Psychosocial Predictors of Health Status

Health status appears to be influenced by a number of psychological,
demographic, and behavioral variables. Although the magnitude and direction of the
affects remains unclear, it is important to investigate the extent to which these psychosocial phenomena predict health status. A hypothetical model of how various psychological (e.g., anxiety, depression and locus of control), demographic (e.g., gender and race), behavioral (e.g., diet, exercising, smoking, alcohol consumption, and body weight ratio), and psycho-social factors (e.g., social support) predict health status is included in Figure 1. This model suggests that these variables may directly, indirectly, individually and collectively predict health status. (See appendix A.)

First, this model postulates that anxiety and depression, and locus of control are inter-related and directly influence each other, and all three directly and indirectly predict health status. More specifically, in this model an external locus of control (EHLC) is positively associated with higher levels of anxiety and depression, while an internal locus of control (IHLC) is associated with lower levels of anxiety and depression. Further, this model postulates that individuals with higher levels of anxiety and depression and/or an ELOC are more likely to endorse more items on health status surveys and vice-versa. Next, this model postulates that MHLC predicts health behaviors, because locus of control influences the extent to which an individual is likely to successfully alter negative health behavior(s). There may be a bi-directional relationship between locus of control and SES. For example, internal attributions may facilitate the achievement of higher SES, while higher SES may foster the development of internal attributions.

In addition, this model postulates that demographic factors (race and gender)
may predict health status by physiologically and environmentally predisposing and/or exposing individuals to factors and/or events that either aggravate or mitigate health status. Constitutional factors may indirectly predict health status by influencing MHLC, anxiety and depression level, and by playing a role in the determination of SES and health behaviors. This model also postulates that SES may indirectly predict health status by exposing the individual to events (e.g., quality of health care, access to health care) which either aggravate or mitigate health status. SES may indirectly influence health status by influencing the individual’s MHLC, anxiety or depression level, and/or health behaviors. This model postulates that health behaviors directly predict health status. Finally, this model suggests that social support mediates depression, and directly impacts health status.

**Purpose of this Study**

Numerous studies have documented the relationship between health status and various factors, including anxiety (e.g., Alexander, 1939; Alexander, 1950; Kalis, Harris, Bennet, & Sokolow, 1961; Summers-Flanagan, & Greenberg, 1985), depression (e.g., Marks, Richardson, Graham, & Levine, 1986) locus of control (e.g., Pilisuck, Montgomery, Parks, & Acredolo, 1993), gender (e.g., Joiner & Blalock, 1995; Ochoa, Beck, & Steer, 1992), race (e.g., Neff, 1984; Roberts, Stevenson, & Breslau, 1981), SES (e.g., Kessler & Neighbors, 1986), social support (e.g., Silveira & Ebrahim, 1998) and health behaviors (e.g., Centers for Disease Control, 1987). However, no prior investigation has evaluated a model including all of these variables to predict health
status in a population of Black and White older adults. This study will evaluate the unique contribution of each variable as well as interactions of variables in predicting health status in these populations.

**Hypotheses:**

The study utilizes correlational, ANOVA, and stepwise regression analyses to investigate a model predicting health status from measures of anxiety, depression and locus of control interacting (both directly and indirectly) with gender, race, socio-economic status and social support.

1. As a preliminary measure of the efficacy of the study methodology, this study should replicate widely supported findings regarding anxiety, depression and locus of control. Specifically, both higher trait anxiety and depression scores should be positively associated with higher chance and powerful others external locus of control scores. Likewise, higher external locus of control, higher trait anxiety scores, and higher depression scores should be positively associated with a higher number of items endorsed on a self-report health symptom survey. Furthermore, females should obtain higher scores than males on Health Symptom Surveys, and anxiety and depression measures.

2. Higher internal locus of control (IHLC) will be associated with lower anxiety and depression scores. Second, the literature in this area predicts that women will obtain higher EHLC scores than men, whereas men will obtain higher IHLC scores than women. Third, some literature in this area suggests that race could interact with
SES such that unique within-group differences are found, when comparing lower SES Blacks to higher SES Blacks and Whites. Specifically, this literature suggests race and MHLC will interact such that Blacks with lower SES will obtain higher EHLC scores than their White counterparts with similar SES backgrounds; whereas Whites (regardless of SES status) and Blacks with higher SES may not significantly differ with regard to either IHLC or EHLC scores. Fourth, the literature in this area predicts that participation in health behaviors should be inversely related to external locus of control. Specifically, health behavior and MHLC should interact such that higher health behavior scores are positively associated with IHLC scores, while lower health behavior scores are positively associated with EHLC scores. Finally, it is predicted that higher IHLC scores will be positively associated with lower health-related symptom scores; and higher EHLC scores will be positively associated with higher health-related symptom scores.

3. The “gender-anxiety” differential should be replicated in this study whereby women obtain higher scores on trait anxiety measures than men. Second, anxiety should interact with race and SES. Specifically, this study predicts that race should interact with SES such that lower SES Blacks will have lower anxiety levels than their lower SES White counterparts. Finally, individuals with higher anxiety scores should obtain higher scores on measures of health symptoms than their counterparts who obtain lower anxiety scores.
4. First, women should obtain higher scores on a depression measure than men. Second, depression should interact with race and SES such that lower SES Blacks will have lower depression levels than their lower SES White counterparts. Finally, individuals with higher depression scores should obtain higher scores on measures of health symptoms than their counterparts who obtain lower depression scores.
CHAPTER 2
METHODOLOGY

Power Analysis

Power analysis indicated that 52 subjects would be required to investigate the relationship between multi-dimensional health locus of control (MHLC) and either anxiety or depression, with power = .80, alpha = .05, and $r = .39$. The effect size of .39 was based on a patient-controlled analgesia study that investigated the relationship between MHLC and anxiety (Reynaert, Janne, Delire, Pirard, Randour, Collard, Installe', Coche, & Cassiers, 1995). Reynaert et al. found a stable inverse relationship between MHLC and STAI anxiety measures ($r = -.3991$ for trait anxiety, $r = -.3946$ for state anxiety). A similarly sized positive correlation between locus of control and anxiety has been reported by other studies (e.g., Emmelkamp & Cohen-Ketteneis, 1975; reported an effect size of .434). Finally, a comparable sized positive association was found between MHLC and depression (e.g., Marks, Richardson, Graham & Levine, 1986; reported an effect size of .38).

Subjects

Although the power analysis indicated 52 subjects, 90 subjects were recruited to insure sufficient power in regression analyses with all 9 predictors. Recruitment was planned to enlist equal numbers of Black and White participants from various sites in
the Columbus, OH metropolitan area. Table 1 provides a listing of locations for recruitment and subject yield at each site. The sample included 33 Black older adults (31 women; 2 men), 56 White older adults (44 women; 12 men), and 1 Other older adult (1 woman). However, one black woman was excluded because her score on self-reported chronic illness was more than two standard deviations above the mean, yielding a final sample size of 89. Mean age of the sample was 74.7 years (+/-9.5); range: 56-92. Additional demographic information is included in Table 2. As indicated in Table 1, older adults were recruited from four sites in the Columbus metropolitan area. Black older adults were recruited from a predominantly middle-class church (New Salem Missionary Baptist Church) and an inner city, lower-class community group (the Urban Leagues Seniors Group); White older adults were recruited from an upper-middle class retirement home (Thurber Westminster Retirement Home) and a community based recreation center (2nd and Summit) that hosts activities for a wide range of adults.

Subjects were recruited by posting sign-up sheets in areas frequented by older adults affiliated with these organizations. These sign-up sheets briefly explained the study, and invited them to attend a seminar and participate in a research experiment. The only prerequisite for participation in this study was that subjects be 55 years or older.
Procedure

Subjects met the experimenter at the organization where they were recruited. Prospective subjects sat together in a large room and were read an introduction to the study (see Appendix A), and provided with a consent form which they read and signed (see Appendix B). Next, the subjects were given a questionnaire packet of seven paper and pencil measures. The following questionnaires were included in each packet: Demographic Questionnaire, Health Behaviors Check-List, Health Locus of Control, Health Symptoms Checklist, Trait-Anxiety Questionnaire, Center for Epidemiological Studies Depression Inventory, and Interpersonal Support Evaluation List -- Short form.

With the exception of the Demographic Questionnaire (which always was completed first), the order of the measures in these packets was varied in four different arrangements to control for an order effect. Packet orders were then randomly assigned to subjects.

Following the completion of the questionnaire packet, subjects were debriefed, thanked (see Appendix C), and then invited to attend a seminar entitled “Maximizing Your Retirement Years.” This seminar was conducted in a group discussion format, where participants identified goals in five life areas (i.e., spirituality, family and friends, physical fitness, personal development, and education), discussed the impact of life changes on these areas, and then made plans for short-term, intermediate, and long-term steps required to achieve these goals. (See appendix D.)
The entire questionnaire packet required 25-45 minutes to complete.

**Instruments**

**Demographic Questionnaire (DO).** A nine-item, self-report demographic instrument was administered (see Appendix E). Items included participants' age, gender, race, marital status, and socioeconomic status.

**Health Behaviors Check List (HBCL).** A twenty-one item self-report questionnaire was administered (see Appendix F) assessing self-reported height, weight, physical exercise activity, smoking history, caffeine consumption, and alcohol consumption.

**Body Mass Index (BMI).** Body mass index expresses the relationship between a person's weight and height. BMI is calculated as weight in kilograms, divided by height in meters squared. BMI between 19 and 22 is positively associated with longevity, while increasing health problems and morbidity rates are associated with BMI greater than 22.

**Health Locus of Control (MHLC).** The Multi-dimensional health locus of control measure investigates three distinct dimensions: internality (IHLC); and two dimensions of external attributions, chance (CHLC) and powerful others (PHLC) (Wallston, & Wallston, 1981). The locus of control measure assesses attributions of control over health-related outcomes. Individuals with high scores on internal health locus of control believe health outcomes are contingent upon their own behavior, capacities, or attributes. Individuals with high scores on the powerful other external
dimension believe that health outcomes are contingent upon powerful figures such as doctors, or religious figures. High scores on the chance external dimension reflects the belief that health outcomes are a result of luck or fate. The questionnaire includes 18 self-report items designed to reflect these three dimensions (6 items per dimension), with each item rated on a 6-point Likert scale (see Appendix G).

The alpha reliabilities for the MHLC Scales ranged from .83 to .86. The three MHLC dimensions are independent. The IHLC and CHLC Scales are negatively correlated (but share less than 10% common variance), and the CHLC and PHLC Scales are only modestly correlated (the 12-item versions correlate + .20).

Health Symptoms Checklist (HSCL). This health symptom checklist consists of three parts. In the first section, global health ratings were assessed by asking subjects to rate (on a scale of 1 to 5) their general health. This section was used to determine global self-rated health (HEALTH). Next, global health ratings were assessed by asking subjects to rate (on a scale of 1 to 5) their current health status compared to their health one year ago. In the third section, specific health problems were assessed by presenting subjects with a range of health disorders, and asking them to indicate if they currently or had previously experienced complications with the listed disorder, and if so, whether the disorder has ever been treated by a doctor or hospital. Both global self-rated health and specific health problem assessments were included because single questions that ask respondents about their global health have been found to predict mortality better than more specific health measures (Benyamini, 1997), while specific
health measures provide a more comprehensive portrait of health.

The HSCL was scored such that 1 point was given for each diagnosis reported, and 1 additional point was given if the subject had received medical care for the problem. Scores ranged from 0-2 for each health problem with possible total score range from 0-96 (see Appendix H). This score reflected self-rated chronic illness (ILLNESS). The HSCL has been widely used in health care and treatment settings.

**Trait-Anxiety Questionnaire.** The STAI (Spielberger, 1983) is a 20-item self-report measure of anxiety (see Appendix I). The STAI evaluates general anxiety levels. All items were rated on a 4 point scale from 1 (“almost never”) to 4 (“almost always”). Subjects were asked to rate the 20 question items with respect to how they “generally” feel (to determine their trait-anxiety).

The STAI is one of the most widely used measures of trait and state anxiety (Buros, 1978). Test-retest reliability on the Trait Anxiety scale for a twenty day period was reported as $r = .86$ for college males and $.76$ for college females; test-retest reliability on the T-Anxiety scale for a twenty day period was reported as $r = .86$ for college males and $.76$ for college females (Spielberger, 1983). Alpha coefficients support internal consistency ($r = .90$ to $.93$) (Spielberger, 1983).

**Center for Epidemiological Studies Depression Inventory (CES-D).** The CES-D is a 20-item self-report measure of depression (see Appendix J) developed for use with community residing older adults (Radloff, 1977). All items were rated on a 4 point scale from 0 (“rarely or none of the time -- less than 1 day”) to 3 (“most all of the time --...
Subjects were asked to rate the 20 question items with respect to how they felt during the prior week.

Interpersonal Support Evaluation List -- Short form (ISEL-SF). The ISEL-SF is a 16-item self-report measure of social support (see Appendix K). All items were rated 0 ("probably false") or 1 ("probably true"). Subjects were asked to rate each of the 16 question items.

Data Analyses

Pearson product-moment correlation coefficients were calculated to examine the hypothetical model (see Figure 1) of the relationship psychosocial variables and health status. Analysis of variance (ANOVA) was used to examine gender differences for trait anxiety, depression, and multi-dimensional health locus of control; and to investigate the effect of SES and race on anxiety, depression, and multi-dimensional health locus of control. Because the model does not specify the relative importance of variables associated with health, stepwise hierarchical regression analysis also was conducted to determine the best predictors of health from the variables assessed: multi-dimensional health locus of control, anxiety, depression, social support, health behaviors, gender, age and SES. A median split was employed to divide participants into "Lower" and "Higher" SES categories. Separate stepwise regression analyses were conducted for each of the health criterion variables: HEALTH and ILLNESS. Three sets of regression analyses were conducted: one for the entire sample, followed by regression analyses for each racial subset (white and black).
CHAPTER 3

RESULTS

Mean scores for the personality variables, social support and health assessments indicate that the sample, overall, was not significantly distressed (anxiety and depression within normal limits), and that respondents tended to make internal attributions of control over health outcomes. Respondents indicated relatively high levels of social support, and self-rated health (HEALTH) was generally fair or good (67.8%). Mean number of health problems (ILLNESS) was 10, suggesting that the sample reported health concerns but did not perceive significant impairment in health. Mean scores are included in Table 3.

Preliminary Analyses

A principal component analysis (PCA) was conducted to determine an aggregate measure of socio-economic status (SES), using the three SES variables included in this study (education level, primary occupation, and renter/owner status). As shown in Table 4, these measures of SES were inter-correlated. The principal component analysis combined education level, primary occupation and domicile status to develop an aggregate index of SES (SESTOT). The steps followed for the PCA are included in Table 5.

Pearson product moment correlation coefficients were calculated to examine the
relationships among the three indices of SES, as well with SESTOT, and other key variables: health status, anxiety, depression and race. As can be seen in Table 4, SESTOT was most strongly associated with education and occupation ($r = .858, p < .01$; $r = .826, p < .01$, respectively), but was also correlated with domicile status ($r = .550, p < .01$). Accordingly, SESTOT was utilized for all subsequent correlation and regression analyses.

**Preliminary Correlational Analyses**

As can be seen in Table 6, many of the hypothesized associations were supported by this analysis. Specifically, trait anxiety and depression were significantly correlated ($r = .525, p < .01$), and depression was negatively associated with internal locus of control ($r = -.236, p < .05$). Trait anxiety and depression were positively associated with ILLNESS ($r = .289, p < .01$; $r = .352, p < .01$, respectively), and depression was significantly associated with lower ratings of HEALTH ($r = .345, p < .01$). Both trait anxiety and depression were inversely related to social support ($r = -.392, p < .01$; $r = -.417, p < .01$, respectively), and depression was inversely related to SES ($r = -.311, p < .01$). Finally, SESTOT was associated with race ($r = .394, p < .01$), age ($r = .28, p < .01$) and higher ratings of HEALTH ($r = -.322, p < .01$).

**Gender Effect**

As can be seen in Table 7, mean scores followed hypothesized directions. Specifically, trait anxiety mean scores were higher for women than men; and depression mean scores were higher for women than men. However, the depression difference was
not significant, \( F(1, 88) = 2.835, p = .096 \), and the anxiety difference was not significant. Internal multi-dimensional locus of control mean scores were similar for women and men; and external multi-dimensional health locus of control mean scores (both chance and powerful others) were similar for women and men.

**Analysis of Variance**

As shown in Table 8, results indicate a main effect of SES for depression, \( F(1, 75) = 6.27, p < .02 \). In other words, lower SES participants were more depressed than their higher SES counterparts; the respective means were 14.7 (SD = 1.27) and 9.6 (SD = 2.6). The ANOVA revealed no main effects or interactions. Mean scores for the variables are included in Table 8.

**Regression Analyses**

**HEALTH**

As shown in Table 9, for the total sample, HEALTH was accounted for by depression \( F(1, 72) = 8.065, p < .01, r^2 = .10 \); alcohol \( F(1, 71) = 6.271, p < .01, r^2 = .07 \); BMI \( F(1, 70) = 4.198, p < .05, r^2 = .05 \); and age \( F(1, 69) = 6.652, p < .01, r^2 = .07 \). As shown in Table 10, the regression for white subjects indicated HEALTH was predicted by BMI \( F(1, 46) = 7.530, p < .01, r^2 = .14 \); and depression \( F(1, 45) = 7.793, p < .01, r^2 = .13 \), only. In the black sub-group, as seen in Table 11, HEALTH was predicted by BMI \( F(1, 23) = 6.104, p > .05, r^2 = .21 \); and SESTOT \( F(1, 22) = 4.799, p < .05, r^2 = .14 \) only.

**ILLNESS**

As shown in Table 12, for the entire sample ILLNESS was predicted by
depression $F(1, 73) = 10.941, p < .01, r^2 = .13$; BMI $F(1, 72) = 10.150, p < .01, r^2 = .11$; age $F(1, 71) = 9.584, p < .01, r^2 = .09$; and social support $F(1, 70) = 7.544, p < .01, r^2 = .07$. Among white subjects, as shown in Table 13, ILLNESS was predicted by SESTOT $F(1, 46) = 5.822, p < .05, r^2 = .11$; internal multi-dimensional health locus of control $F(1, 45) = 5.177, p < .05, r^2 = .09$; and external multi-dimensional health locus of control (powerful others) $F(1, 44) = 6.670, p < .05, r^2 = .11$. Among black subjects, as shown in Table 14, ILLNESS was predicted by BMI $F(1, 24) = 11.423, p < .01, r^2 = .32$; and age $F(1, 23) = 7.346, p < .05, r^2 = .16$. 
CHAPTER 4
DISCUSSION

This study investigated psychological and social predictors of health among white and black older adults. Results were generally consistent with findings from previous studies. Specifically, anxiety was strongly associated with depression, and anxiety and depression were associated with poorer self-rated health. Depression was negatively associated with internal locus of control, and with lower socio-economic status. Anxiety and depression were associated with lower social support; social support was associated with internal locus of control; and lower social support was associated with SES. The SES of Blacks was lower than that of whites, and SES was negatively associated with health status.

The study included two measures of health: global self-rated health, and self-reported chronic illness. Predictors of self-rated health were generally similar to predictors of illness. In the total sample, predictors of both health measures included depression, BMI, and age. Alcohol consumption accounted for an additional 7% of the variance in self-rated health, while social support accounted for 7% of the variance in illness. Thus, overall, the common predictors of health and illness in the total sample were depression, BMI, and age. However, in the analysis of white and black subgroups, distinct patterns of predictors emerged. Depression and BMI were predictors of self-
rated health for whites, while illness was predicted by a different set of variables (SES, internal HLOC, PO-HLOC). Among black subjects, SES was a predictor of self-rated health along with BMI. However, chronic illness was predicted by BMI and age. Overall, BMI and SES were powerful predictors of health for both races, with more overweight and lower SES subjects experiencing poorer health. BMI would appear to be relatively modifiable, and it would be expected that reductions in weight would be associated with improved health. SES is determined by multiple factors, many of which may be out of the control of the individual. However, it would be expected that increases in SES would also be associated with improved self-rated health. Future longitudinal research will facilitate examination of the influence of health behavior and social change on subsequent health outcomes.

Among whites, self-reported illness was predicted both by attribution of personal control/influence over health outcomes as well as by attributions of control by powerful others. This finding is consistent with numerous studies suggesting that whites are more likely to seek medical attention for preventive medicine and other non-emergency medical care, while blacks are disproportionately more likely to utilize hospitals for emergency medical care (Zola, 1972). Thus, among white subjects good health was associated with attributions of personal control over health outcomes as well as with attributions of control by external forces such as trained health care providers and technological advances. Attributions of control did not predict health in the black subgroup.
This study did not reveal gender differences observed in prior studies. Gender was not associated with anxiety, depression, or self-rated health. However, this may be an artifact of having a relatively small proportion of men in this sample (e.g., 17%). Such a theory is consistent with mean score comparisons indicating male participants were less anxious and depressed, and reported better health than their female counterparts. Also, race was not associated with anxiety, depression or health. This null finding can be interpreted several ways. First, this finding may merely be comparable with other studies that did not support an association among race and psychological distress (e.g., Aneshensel, Clark, & Freirichs, 1983). Alternatively, it may be the case that the lack of an association among race and anxiety, depression, locus of control or health is meaningful. Blacks generally were from lower SES backgrounds (which is associated with worse health), and are traditionally less likely to utilize preventive medicine. Yet, blacks were not more distressed or in worse health than whites. Although SES was a predictor of self-rated health among blacks, the absence of higher levels of distress among blacks is consistent with data from Ulbrich, Warheit, and Zimmerman (1989) finding that lower-SES blacks were somehow less vulnerable than whites to the psychological impact of undesirable economic events. In other words, this suggests the possibility that lower-SES Blacks may be more emotionally resilient, and less psychologically vulnerable than others because they have developed various adaptive emotional mechanisms that enable them to cope with the debilitating effects of economic strains.
In addition to psychological distress, race was not associated with locus of control. However, this is consistent with data from Hale and Cochran (1986) indicating an association of external attributional style with psychological distress among young, White college students, but no such association among either white or black older adults. In this sample of white older adults, health was associated with internal locus of control. Endorsing both internal and external attributions, however, is not inconsistent with the conceptualization of this measure, as internal and external locus of control are not opposites. Rather, this measure was constructed in such a fashion that one could simultaneously endorse high scores on both.

Limitations

First, this study is limited by its correlational design. Therefore, it does not provide an opportunity to examine causality. Accordingly, we cannot determine whether depression, anxiety, locus of control and/or SES, social support, and/or health behaviors most influence health or whether health most influences these variables. A longitudinal study would provide more insight into the manner in which these variables might influence health and in which health might influence these variables. Correlational and stepwise regression analyses have identified core personality and psycho-social variables associated with health, and have identified racial differences that may be important.

Another limitation of the study was that the majority of the participants were women, which limits generalizability. Since women have a longer life-span than men,
this lack of male participants may, at least in part, be an artifact of recruiting from a community sample of older adults. Accordingly, this study could not investigate personality differences between men and women. Although Pilisuk, Montgomery, and Acredolo (1993) suggest men are more likely to make internal attributions about health outcomes, while women are more likely to make external attributions, this predominantly female sample had higher overall internal attributional scores. Perhaps this reflects differences in attributional style across the life span. Older women may have learned to place an emphasis on personal control over health outcomes, as well as acknowledging the importance of external forces. Although a significant interaction between gender and attributional style has previously been detected (Molinari & Kahanna, 1981), the relationship of gender and attributional style among the elderly may be overlooked, in part, because studies investigating attributional style typically have not considered the effect of gender.

This study is also limited by the methodology employed to define participants’ SES. That is, a median split was conducted to assign subjects to either a “Lower” or “Higher” SES category; and, therefore, automatically sacrifices some power by using a dichotomous grouping for participants from various backgrounds. In addition, the participants sampled from the most affluent site were predominately white, while the participants sampled from the least affluent site were all black. As such, there was an inverse ratio of “Higher SES” to “Lower SES” the number of blacks compared to whites (e.g., 5:23; 32:19, respectively), and there were few “Higher SES” blacks
(e.g., 5). It seems likely that this disparity in SES between racial groups contributed to the statistical analyses not revealing any main effects or interactions, when examining the effect of SES and race on personality variables and attributional style. Clearly including more “Higher SES” blacks would have made this a more optimal sample and provided valuable insights into both between and within group differences. However, when interpreted within the historical context of race and economics in America (particularly among an elderly cohort), it may be the case that having 22% of the blacks in the “Higher SES” group provides a representative sample.

Finally, this study is limited by its mono-method evaluation of the dependent variable. Specifically, the assessment of health status relied exclusively on the participants’ self-report, and did not include an independent physiological assessment. Therefore, this study is limited by the reliability of the participants’ assessment of health status, and does not contrast these self-reports with physiological measurements. A post-hoc contrast of self-report scores and physiological measurements could have provided valuable insight into whether or not participants’ erroneously (over or under) reported health status, and, perhaps, a more accurate account of health status. This concern may be particularly relevant when contrasting Black and White, lower and upper SES elderly participants, as these groups have historically demonstrated unique patterns when both defining and reacting to “minor” and “severe” medical situations (Berk, 1946).
Conclusions:

The common predictors of health status in the total sample were depression, BMI, and age. Many of the findings for the overall population were consistent with previous studies. Anxious subjects were also more depressed, both anxious and depressed subjects had less social support, and both anxious and depressed subjects experienced poorer health. More depressed participants were less likely to be associated with internal attributions, and more depressed individuals were more likely to have lower SES. Participants with higher SES were more likely to have higher levels of social support and endorse an internal locus of control, while participants with lower SES were more likely to experience poorer health.

This study also identified unique patterns of health predictors for black and white older adults. Among whites locus of control may be relevant, while among blacks psycho-social/financial factors (e.g., SES) may be more relevant predictors of health status. At the same time, while blacks had lower SES than whites, race did not directly influence health status. Accordingly, this study found that including racially and socio-economically diverse participants reveals unique, important within and between group differences.

Future Directions:

Future investigations of older adults would benefit by including both men and women from diverse racial and socio-economic backgrounds. In addition to increasing generalizability, diverse samples could reveal important between and within group
differences. Identifying and understanding idiosyncratic cultural and gender issues will facilitate designing treatment paradigms that are optimally effective.

This study identified several variables that predicted health in the elderly. Future studies would benefit science by re-evaluating and/or expanding knowledge of precisely how these personality and psycho-social phenomena interact with health. Ultimately, a longitudinal study would be most beneficial, to better understand the degree to which personality and psycho-social variables may have a bi-directional relationship with health.
REFERENCES


Preventive Medicine, 9(1), 15 - 20.


mediation by primary


Psychiatry, V. 11, 25 - 37.


psycho-physical distress: A reappraisal of the sex-role hypothesis. The University of North Carolina Press.


APPENDIX A

Study Description
**Study Description**

In this study you will be asked to complete five surveys. These surveys will take 15 to 25 minutes, and they will ask you various questions about your background, health related behaviors, health status, and attitudes about your health.

You should know that nobody other than the study personnel will see your answers or know what you did in any part of the study. Your privacy will be thoroughly protected. Also, you should know that you have the right to withdraw from the study at any time without penalty. You also have the right to decline to answer specific questions if you wish.
The Ohio State University

CONSENT TO INVESTIGATIONAL PROCEDURE

I, ____________________________, hereby authorize or direct Dr. Charles Emery or associates or assistants of his choosing, to perform the following treatment or procedure:

Administering several self-report forms before beginning a seminar on adjusting to life change,

upon ____________________________.

B (myself or name of subject)

The experimental (research) portion of the treatment or procedure is:

I will be asked to complete a packet of questionnaires documenting my feelings, attitudes, health behaviors, socio-economic status (e.g., educational level, income, and profession), demographics (e.g., age, race and gender), and health status. I will complete these questionnaires today, prior to attending a seminar on adjusting to life change.

This is done as part of investigation entitled:

The relationship between health status, anxiety, locus of control, depression, social support, gender, socio-economic status and health behaviors among black and white older adults.

1. Purpose of the treatment or procedure:

is to evaluate behavioral, physiological, and psycho-social factors associated with health status.

2. Possible appropriate alternative treatment or procedure (not to participate in the study is always an option):

is to not participate in the study, and listen to a relaxation tape. There is no alternative procedure since this is not a treatment study.

3. Discomforts and risks reasonably expected:

are minimal and are limited to the personal inconvenience of completing the questionnaire packet. I will not be responsible for any costs associated with this study. I will be assigned a subject number upon entry into the study. Data will be stored in locked files, accessible only to the investigator identifying information on the data file.

Page 1 of 3
4. Possible benefits for subject/society:

include (1) improving models of health care for future elderly patients, both black and white, and (2) identifying attitudes, behaviors, and physiological factors, that are associated with health status.

5. Anticipated duration of subject's participation:

approximately 30 - 45 minutes for completing questionnaires.

I hereby acknowledge that ___________________________ has provided information about the procedure described above, about my rights as a subject, and he/she answered all questions to my satisfaction. I understand that I may contact him/her at Phone No. 688-3061 should I have additional questions. He/She has explained the risks described above and I understand them; he/she has also offered to explain all possible risks or complications.

I understand that, where appropriate, the U.S. Food and Drug Administration may inspect records pertaining to this study. I understand further that records obtained during my participation in this study that may contain my name or other personal identifiers may be made available to the sponsor of this study. Beyond this, I understand that my participation will remain confidential.

I understand that I am free to withdraw my consent and participation in this project at any time after notifying the project director without prejudicing future care. Specifically, I can withdraw my consent and still attend the seminar. No guarantee has been given to me concerning treatment or procedure.

I understand in signing this form that, beyond giving consent, I am not waiving any legal rights that I might otherwise have, and I am not releasing the investigator, the sponsor, the institution, or its agents from any legal liability for damages that they might otherwise have.

In the event of injury resulting from participation in this study, I also understand that immediate medical treatment is available at University Hospitals of The Ohio State University and that the costs of such treatment will be at my expense; financial compensation beyond that required by law is not available. Questions about this should be directed to the Office of Research Risks at 292-5958.
The Ohio State University Protocol No. __________________

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

AM

Date: ______ Time: ______ PM Signed: ____________________________

(Subject)

I certify that I have personally completed all blanks in this form and explained them to the subject or his/her representative before requesting the subject or his/her representative to sign it.

Date: ________ Signed: ____________________________

(Signature of Project Director or his/her Authorized Representative)
APPENDIX C

Debriefing Statement
Thanks for your participation.
--Dream List--

Spirituality
1. _____________________________
2. _____________________________
3. _____________________________
4. _____________________________
5. _____________________________
6. _____________________________
7. _____________________________

Family/Friends
1. _____________________________
2. _____________________________
3. _____________________________
4. _____________________________
5. _____________________________
6. _____________________________
7. _____________________________

Physical Fitness
1. _____________________________
2. _____________________________
3. _____________________________
4. _____________________________
5. _____________________________
6. _____________________________
7. _____________________________

Personal Development
1. _____________________________
2. _____________________________
3. _____________________________
4. _____________________________
5. _____________________________
6. _____________________________
7. _____________________________

Educational
1. _____________________________
2. _____________________________
3. _____________________________
4. _____________________________
5. _____________________________
6. _____________________________
7. _____________________________
IRS #1:
5 Year Goals

Spirituality
1. ______________________________________________________
2. ______________________________________________________
3. ______________________________________________________
4. ______________________________________________________
5. ______________________________________________________
6. ______________________________________________________
7. ______________________________________________________

Family/Friends
1. ______________________________________________________
2. ______________________________________________________
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4. ______________________________________________________
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6. ______________________________________________________
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Physical Fitness
1. ______________________________________________________
2. ______________________________________________________
3. ______________________________________________________
4. ______________________________________________________
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7. ______________________________________________________

Personal Development
1. ______________________________________________________
2. ______________________________________________________
3. ______________________________________________________
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6. ______________________________________________________
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Educational
1. ______________________________________________________
2. ______________________________________________________
3. ______________________________________________________
4. ______________________________________________________
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6. ______________________________________________________
7. ______________________________________________________
## IRS # 2: Year Goals

### Spirituality
1. ____________________________________________________
2. ____________________________________________________
3. ____________________________________________________
4. ____________________________________________________
5. ____________________________________________________
6. ____________________________________________________
7. ____________________________________________________

### Family/Friends
1. ____________________________________________________
2. ____________________________________________________
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6. ____________________________________________________
7. ____________________________________________________

### Physical Fitness
1. ____________________________________________________
2. ____________________________________________________
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5. ____________________________________________________
6. ____________________________________________________
7. ____________________________________________________

### Personal Development
1. ____________________________________________________
2. ____________________________________________________
3. ____________________________________________________
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5. ____________________________________________________
6. ____________________________________________________
7. ____________________________________________________

### Educational
1. ____________________________________________________
2. ____________________________________________________
3. ____________________________________________________
4. ____________________________________________________
5. ____________________________________________________
6. ____________________________________________________
7. ____________________________________________________
### IRS #3:
#### 6 Month Goals

**Spirituality**
1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________
6. __________________________________________
7. __________________________________________

**Family/Friends**
1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________
6. __________________________________________
7. __________________________________________

**Physical Fitness**
1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________
6. __________________________________________
7. __________________________________________

**Personal Development**
1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
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6. __________________________________________
7. __________________________________________

**Educational**
1. __________________________________________
2. __________________________________________
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7. __________________________________________
### IRS #4:
This Month’s Goals

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<tr>
<th>Spirituality</th>
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APPENDIX E

Demographic Questionnaire
Demographic Questionnaire

*Please answer the following questions about yourself by checking the most appropriate answer.*

1. **Sex:**  ___ Male  ___ Female

2. **Race:**
   ___ African-American or Black
   ___ Caucasian or White
   ___ Hispanic
   ___ Other

3. **Age:** ___ (Please, fill in your age). **Birth date:** ___________

4. **Marital Status:**
   ___ Married
   ___ Widowed
   ___ Divorced
   ___ Single, never been married

5. **Number of children:** ___ (Please, fill in the blank).

6. **Level of education:**
   ___ 12 years or less  ___ Technical school
   ___ Some college  ___ Graduated from college
   ___ Graduate or professional school

7. **Maximum average income for any three year period.**
   ___ $10,000 or less  ___ $10,000 to $15,000
   ___ $15,000 to $25,000  ___ $25,000 to $50,000
   ___ $50,000 or more

8. **Primary lifetime occupation:**
   ___ Physical laborer: clerical, construction worker, custodian, factory worker, etc.
   ___ Administrative: accountant, engineer, manager, teacher, etc.
   ___ Professional: lawyer, doctor, pastor, entrepreneur, etc.

9. ___ I have always rented an apartment or house.
    ___ I have previously owned or presently own my home.
    ___ I have owned two or more properties at one time.
APPENDIX F

Health Behaviors Check List
Smoking

1. Do you smoke cigarettes now?
   A. Yes (continue)
   B. No (skip to question 5)

2. When did you last have a cigarette? Date: _________ Time: ________

3. On the average, how many cigarettes do you smoke a day?
   A. Less than a pack a week
   B. ½ a pack a day or less
   C. 1 pack a day
   D. 1 ½ packs a day
   E. 2 packs a day
   F. 2 ½ packs a day
   G. 3 or more packs a day

4. How many years have you smoked this amount? ______ years

5. Have you ever smoked cigarettes on a regular basis?
   A. Yes (continue)
   B. No (skip to next questionnaire)

6. Prior to quitting, on the average, how many cigarettes did you smoke a day?
   A. Less than a pack a week
   B. ½ a pack a day or less
   C. 1 pack a day
   D. 1 ½ packs a day
   E. 2 packs a day
   F. 2 ½ packs a day
   G. 3 or more packs a day

7. How many years did you smoke? ______ years

8. How long has it been since you quit smoking? ______ years

72
Caffeine

1. Do you ever drink caffeinated beverages?
   A. Yes (continue)
   B. No (skip to next questionnaire)

On average, how many cups (8 oz.) of coffee per day?
   A. I never drink coffee
   B. 1 or less cups a day
   C. 2-3 cups a day
   D. 4-5 cups a day
   E. 6 or more cups a day

On average, how many cans/bottles (12 oz.) of caffeinated soda per day?
   A. I never drink caffeinated soda
   B. 1 or less cans/bottles a day
   C. 2-3 cans/bottles a day
   D. 4-5 cups/glasses a day
   E. 6 or more cans/bottles a day

On average, how many cups/glasses (8 oz. - hot or iced) of caffeinated tea per day?
   A. I never drink caffeinated tea
   B. 1 or less cups/glasses a day
   C. 2-3 cups/glasses a day
   D. 4-5 cups/glasses a day
   E. 6 or more cups/glasses a day

2. Approximately how much of each of the above beverages have you had today?

<table>
<thead>
<tr>
<th>BEVERAGE</th>
<th>AMOUNT</th>
<th>WHAT TIME</th>
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73
Alcohol

1. Do you ever drink alcohol?
   A. No (Skip to next questionnaire)
   B. Yes (Continue)

   On average, how many cans/bottles (12 oz.) of beer per day?
   A. I never drink beer
   B. 1 or less cans/bottles a day
   C. 2-3 cans/bottles a day
   D. 4-5 cans/bottles a day
   E. 6 or more cans/bottles a day

   On average, how many glasses (6 oz.) of wine per day?
   A. I never drink wine
   B. 1 or less glasses a day
   C. 2-3 glasses a day
   D. 4-5 glasses a day
   E. 6 or more glasses a day

   On average, how many mixed drinks (2 oz. alcohol) per day?
   A. I never drink hard liquor
   B. 1 or less mixed drinks a day
   C. 2-3 mixed drinks a day
   D. 4-5 mixed drinks a day
   E. 6 or more mixed drinks a day
Weight

1. What is your present weight? ________ height? ________

2. How would you describe your present weight (Circle one)
   - Very Slightly About Slightly Very
   - Overweight Overweight Average Underweight Underweight

Exercise/Activity

3. Are you participating in any exercise or sports activities on a regular basis (even if only once a week)? Include any physical activity (for example, walking, stretching, yoga, jogging, tennis, team sports, aerobics classes, bowling, golf, swimming, weight lifting, etc.).
   - A. Yes
   - B. No

4. Please describe each exercise or sports activity in which you participate on a regular basis. Also indicate how many hours per week, on average, you spend doing that activity.

<table>
<thead>
<tr>
<th>Type of Exercise/Activity</th>
<th>Hours per week</th>
<th>How long (years/months) have you been doing this exercise/activity?</th>
</tr>
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APPENDIX G

Multi-dimensional Health Locus of Control
Questionnaire #1

Please answer these items carefully, but do not spend too much time on any one item. As much as you can, try to respond to each item independently. When making your choice, do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe or how you think we want you to believe.

Circle the appropriate number.

<table>
<thead>
<tr>
<th>Circle the appropriate number.</th>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If I get sick, it is my own behavior which determines how soon I get well again.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2. No matter what I do, if I am going to get sick, I will get sick.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>3. Having regular contact with my physician is the best way for me to avoid illness.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4. Most things that affect my health happen to me by accident.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5. Whenever I don't feel well, I should consult a medically trained professional.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6. I am in control of my health.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7. My family has a lot to do with my becoming sick or staying healthy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>8. When I get sick, I am to blame.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>9. Luck plays a big part in determining how soon I will recover from an illness.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>10. Health professionals control my health.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
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<tr>
<td>11. My good health is largely a matter of good fortune.</td>
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<td>3</td>
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<td>6</td>
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1
12. The main thing which affects my health is what I myself do.  & 1 & 2 & 3 & 4 & 5 & 6  
13. If I take care of myself, I can avoid illness.  & 1 & 2 & 3 & 4 & 5 & 6  
14. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.  & 1 & 2 & 3 & 4 & 5 & 6  
15. No matter what I do, I'm likely to get sick.  & 1 & 2 & 3 & 4 & 5 & 6  
16. If it's meant to be, I will stay healthy.  & 1 & 2 & 3 & 4 & 5 & 6  
17. If I take the right actions, I can stay healthy.  & 1 & 2 & 3 & 4 & 5 & 6  
18. Regarding my health, I can only do what my doctor tells me to do.  & 1 & 2 & 3 & 4 & 5 & 6  

APPENDIX H

Health Symptoms Check List
1. In general, would you say your health is:

   (circle one)
   Excellent ......................................................... 1
   Very Good ....................................................... 2
   Good ............................................................... 3
   Fair ............................................................... 4
   Poor ............................................................... 5

2. Compared to one year ago, how would you rate your health in general now?

   (circle one)
   Much better now than one year ago ...................... 1
   Somewhat better now than one year ago .............. 2
   About the same as one year ago ......................... 3
   Somewhat worse now than one year ago .............. 4
   Much worse now than one year ago .................... 5
Health Symptoms Checklist

ID# _______________________

1. **Within the last month have you suffered from any problems with** ... *(Circle one)*
   
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headaches?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hay fever?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Difficulty Sleeping?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Constipation?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Trouble with eyes?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

   **Within the last month have you suffered from any problems with** ...
   
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>A bad back?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Nerves?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cold and flu?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Trouble with feet?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(Corns, Bunions, Athlete's foot, etc.)</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Always feeling tired?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

   **Within the last month have you suffered from any problems with** ...
   
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney or bladder trouble?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Painful Joints?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Difficulty concentrating?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Palpitations or breathlessness?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Trouble with ears?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

   **Within the last month have you suffered from any problems with** ...
   
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigestion or other stomach trouble?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Sinus or catarrh?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Persistent cough?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Faints or dizziness?</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
2.) Have you ever had any of the following medical conditions?

**IF YES,**
has it ever been treated by a doctor or hospital?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
<th><strong>IF YES,</strong> has it ever been treated by a doctor or hospital?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Emphysema / Bronchitis</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Other chest trouble</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Stomach or Other Digestive disorder</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Piles or Hemorrhoids or Arthritis</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Heart trouble</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Other cancer</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Varicose veins</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Migraine</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Back trouble</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Stroke</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Epilepsy / fits</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Coronary Disease</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Colon disorder</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Liver disease/Hepatitis</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Ulcer</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Anemia</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Angina (Chest Pain)</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
<tr>
<td>Others (Please List)</td>
<td>1</td>
<td>0</td>
<td>Yes 0</td>
</tr>
</tbody>
</table>

*Others (Please List)*

<table>
<thead>
<tr>
<th>Others (Please List)</th>
<th>1</th>
<th>0</th>
<th>Yes 0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX I

Trait-Anxiety Questionnaire
### SELF-EVALUATION QUESTIONNAIRE

**STAI Form Y-2**

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
</table>

**DIRECTIONS:** A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you **generally** feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. I feel pleasant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. I feel nervous and restless</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. I feel satisfied with myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. I wish I could be as happy as others seem to be</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. I feel like a failure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. I feel rested</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. I am &quot;calm, cool, and collected&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. I feel that difficulties are piling up so that I cannot overcome them</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. I worry too much over something that really doesn’t matter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. I am happy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. I have disturbing thoughts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. I lack self-confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. I feel secure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. I make decisions easily</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. I feel inadequate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. I am content</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. Some unimportant thought runs through my mind and bothers me...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38. I take disappointments so keenly that I can’t put them out of my mind</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. I am a steady person</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40. I get in a state of tension or turmoil as I think over my recent concerns and interests</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX J

Center for Epidemiological Studies Depression Inventory
Circle the number for each statement which best describes how often you felt or behaved this way—DURING THE PAST WEEK

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rarely or None of the Time (Less than 1 Day)</th>
<th>Some or a Little of the Time (1-2 Days)</th>
<th>Occasionally or a Moderate Amount of Time (3-4 Days)</th>
<th>Most of All the Time (5-7 Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I was bothered by things that usually don't bother me</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. I did not feel like eating; my appetite was poor</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. I felt that I could not shake off the blues even with help from my family or friends</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. I felt that I was just as good as other people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. I had trouble keeping my mind on what I was doing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. I felt depressed</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. I felt that everything I did was an effort</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. I felt hopeful about the future</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. I thought my life has been a failure</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10. I felt fearful</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. My sleep was restless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. I was happy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13. I talked less than usual</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14. I felt lonely</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. People were unfriendly</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. I enjoyed life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. I had crying spells</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. I felt sad</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19. I felt that people disliked me</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20. I could not get “going”</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
APPENDIX K

Interpersonal Support Evaluation List – Short form
<table>
<thead>
<tr>
<th>Question</th>
<th>Probably False</th>
<th>Probably True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. There is at least one person I know whose advice I really trust.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2. There is really no one I can trust to give me good financial advice.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3. There is really no one who can give me objective feedback about how I'm handling problems.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4. When I need suggestions for how to deal with a personal problem, I know someone I can turn to.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. I don't often get invited to do things with others.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>6. When I feel lonely, there are several people I could call and talk to.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7. I regularly meet or talk with members of my family or friends.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>8. I feel that I'm on the fringe in my circle of friends.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>9. If I had to go out of town for a few weeks, someone I know would look after my house (the plants, pets, yard, etc.).</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10. If I were sick and needed someone to drive me to the doctor, I would have trouble finding someone.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>11. If I were sick, there would be almost no one I could find to help me with my daily chores.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>12. If I had to mail an important letter at the post office by 5:00 and couldn't make it, there is someone who could do it for me.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>13. Most of my friends are more successful at making changes in their lives than I am.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>14. Most of my friends are more interesting than I am.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>15. I am more satisfied with my life than are most people.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>16. I have a hard time keeping pace with my friends.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
IRS #5:
Daily Things-to-Do List

Spirituality
1. _____________________________________________
2. _____________________________________________
3. _____________________________________________
4. _____________________________________________
5. _____________________________________________
6. _____________________________________________
7. _____________________________________________

Family/Friends
1. _____________________________________________
2. _____________________________________________
3. _____________________________________________
4. _____________________________________________
5. _____________________________________________
6. _____________________________________________
7. _____________________________________________

Physical Fitness
1. _____________________________________________
2. _____________________________________________
3. _____________________________________________
4. _____________________________________________
5. _____________________________________________
6. _____________________________________________
7. _____________________________________________

Personal Development
1. _____________________________________________
2. _____________________________________________
3. _____________________________________________
4. _____________________________________________
5. _____________________________________________
6. _____________________________________________
7. _____________________________________________

Educational
1. _____________________________________________
2. _____________________________________________
3. _____________________________________________
4. _____________________________________________
5. _____________________________________________
6. _____________________________________________
7. _____________________________________________
Figure 1
Theoretical model of relationship between anxiety, health locus of control, depression, social support, race, gender, socio-economic status, health behaviors and health status.
Figure 1
Theoretical Model of Relationship Between Anxiety, LOC, Depression, Social Support and Health Status

Anxiety Level

Locus of Control

Depression

Health Behaviors:
- Diet
- Exercise
- Smoking
- ETCH
- Body Weight Ratio

SES:
- Education
- Occupation Status
- Income

Demographics:
- Race
- Gender

Health Status
(Health Symptoms' Survey Score)
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UMI
<table>
<thead>
<tr>
<th>Recruitment Location</th>
<th>Economic Class, Race</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westminster Thurber Retirement Home</td>
<td>Upper middle-class, white</td>
<td>32</td>
<td>35.6</td>
</tr>
<tr>
<td>2nd and Summit</td>
<td>Range of backgrounds, white</td>
<td>26</td>
<td>28.9</td>
</tr>
<tr>
<td>Urban League Seniors Group</td>
<td>Lower-class, black</td>
<td>27</td>
<td>30.0</td>
</tr>
<tr>
<td>New Salem Baptist Church</td>
<td>Range of backgrounds, black</td>
<td>4</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Table 1: Population demographics stratified by recruitment location.
<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>32</td>
<td>35.6</td>
</tr>
<tr>
<td>Caucasian American</td>
<td>56</td>
<td>62.2</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>75</td>
<td>83.3</td>
</tr>
<tr>
<td>Male</td>
<td>14</td>
<td>15.6</td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 years or less</td>
<td>25</td>
<td>27.8</td>
</tr>
<tr>
<td>Some college</td>
<td>32</td>
<td>35.6</td>
</tr>
<tr>
<td>College graduate</td>
<td>13</td>
<td>14.4</td>
</tr>
<tr>
<td>Graduate or professional school</td>
<td>17</td>
<td>18.9</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>24</td>
<td>26.7</td>
</tr>
<tr>
<td>Widowed</td>
<td>42</td>
<td>46.7</td>
</tr>
<tr>
<td>Divorced</td>
<td>18</td>
<td>20.0</td>
</tr>
<tr>
<td>Single, never been married</td>
<td>6</td>
<td>6.7</td>
</tr>
<tr>
<td><strong>Primary occupation</strong></td>
<td></td>
<td></td>
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<table>
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Table 2: Demographic characteristics of the sample.
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Personality Variables:
- STAI-Trait Anxiety: 33.4 11.1 14-57 89
- Depression: 12.3 7.5 1-33 89
- Multi-Dimensional Health Locus of Control:  
  - Internal: 23.9 6.9 6-36 89  
  - External: Chance: 16.8 6.9 5-33 89  
  - External: Powerful Others: 19.7 7.1 2-35 89

Psychosocial measures:
- Social Suppor: 4.1 2.2 1-11 89

Health Outcome Measures:
- Health Symptoms Check List: 10.3 7.52 0-32 89

Global Self-rated Health

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<tr>
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Table 3: Mean scores for personality, psycho-social and health variables, and frequency distribution of global self-rated health.
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<td>.096</td>
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<td>.352*</td>
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<td></td>
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</tbody>
</table>

**Note.** SEST = SESTOT = Aggregate socio-economic status, EDU = Educational level, OCC = Primary Education, DOM = Domicile status, HEA = HEALTH, ILL = ILLNESS, ANX = Trait Anxiety, DEP = Depression, and RACE = Race.

* Correlation is significant at the .05 level (2-tailed)
** Correlation is significant at the .01 level (2-tailed)

Table 4: Pearson product-moment correlation coefficients among aggregate social economic status, education level, primary occupation, domicile status, both criterion variables, personality variables and race.
Step 1: Communalities

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<tr>
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Step 2: Total Variance Explained

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<td>Cumulative %</td>
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<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
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Step 3: Component Matrix

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Step 4: Component Score Coefficient Matrix

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Table 5: Summary of the principal component analysis, with socio-economic status serving as the common factor.
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<th>EHLC</th>
<th>EHLPC</th>
<th>ANX</th>
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<th>SOC</th>
<th>SEST</th>
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<td></td>
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</tr>
</tbody>
</table>

Note. GEN = Gender, RACE = Race, AGE = Age, IHLC = Internal health locus of control, EHLC = External health locus of control (chance), EHLPC = External health locus of control (power others), ANX = Trait Anxiety, DEP = Depression, SOC = Social support, SEST = SESTOT = Aggregate socio-economic status, HEA = HEALTH, ILL = ILLNESS.

* Correlation is significant at the .05 level (2-tailed)
** Correlation is significant at the .01 level (2-tailed)

Table 6: Pearson product-moment correlation coefficients among gender, age, race, multi-dimensional health locus of control, anxiety, depression, socio-economic status, social support, HEALTH and ILLNESS.
### Table 7: Mean scores for anxiety, depression, and multi-dimensional health locus of control by gender (n = 89).

<table>
<thead>
<tr>
<th>Personality Variables</th>
<th>Men</th>
<th>Women</th>
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<tbody>
<tr>
<td>STAI-Trait Anxiety</td>
<td>29.5</td>
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<td>Depression</td>
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<td>Multi-Dimensional Health Locus of Control</td>
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<tr>
<td>Internal</td>
<td>24.8</td>
<td>23.7</td>
</tr>
<tr>
<td>External: Chance</td>
<td>18.6</td>
<td>16.5</td>
</tr>
<tr>
<td>External: Powerful Others</td>
<td>20.2</td>
<td>19.6</td>
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<table>
<thead>
<tr>
<th>Health Outcome Measures</th>
<th>Men</th>
<th>Women</th>
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<tbody>
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<tr>
<td>White</td>
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<td>(12.1)</td>
</tr>
<tr>
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<tr>
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<td>White</td>
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<td>(9.2)</td>
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<td>12.5</td>
<td>(5.7)</td>
</tr>
<tr>
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<tr>
<td>Multi-Dimensional Health Locus of Control:</td>
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<td>Internal:</td>
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<td>18.7</td>
<td>(9.5)</td>
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* significant main effect for race, p < .05.

Table 8: SES (lower and higher) and race (white and black) among anxiety, depression, and multi-dimensional health locus of control (n = 79).
Criterion Variable: HEALTH

<table>
<thead>
<tr>
<th>Variable</th>
<th>R Square</th>
<th>Adj. R^2</th>
<th>F</th>
<th>Sig. F</th>
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<td>4.198</td>
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<td>6.652</td>
<td>.012</td>
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</table>

Table 9: Stepwise regression analysis predicting health outcomes from personality and psychosocial variables among white and black older adults (n = 89).
Criterion Variable: HEALTH

<table>
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<tr>
<th>Variable</th>
<th>R Square</th>
<th>Adj. R Square</th>
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<th>Sig. F</th>
<th>Beta</th>
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Table 10: Stepwise regression analysis predicting health outcomes from personality and psychosocial variables among white older adults (n = 56).
<table>
<thead>
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<th>F</th>
<th>Sig. F</th>
<th>Beta</th>
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<td>4.799</td>
<td>.039</td>
<td>-.377</td>
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**Table 11: Stepwise regression analysis predicting health outcomes from personality and psychosocial variables among black older adults (n = 32).**

Criterion Variable: HEALTH
Table 12: Stepwise regression analysis predicting health outcomes from personality and psychosocial variables among black and white older adults (n = 89).

Criterion Variable: ILLNESS

<table>
<thead>
<tr>
<th>Variable</th>
<th>R Square</th>
<th>Adj. R Square</th>
<th>F</th>
<th>Sig. F</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
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<td>.118</td>
<td>10.941</td>
<td>.001</td>
<td>.361</td>
</tr>
<tr>
<td>BMI</td>
<td>.24</td>
<td>.217</td>
<td>10.150</td>
<td>.002</td>
<td>.328</td>
</tr>
<tr>
<td>Age</td>
<td>.33</td>
<td>.300</td>
<td>9.584</td>
<td>.003</td>
<td>.315</td>
</tr>
<tr>
<td>Soc. Sup.</td>
<td>.39</td>
<td>.359</td>
<td>7.544</td>
<td>.008</td>
<td>-.295</td>
</tr>
<tr>
<td>Variable</td>
<td>R Square</td>
<td>Adj. R Square</td>
<td>F</td>
<td>Sig. F</td>
<td>Beta</td>
</tr>
<tr>
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<td>----------</td>
<td>---------------</td>
<td>------</td>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>SES</td>
<td>.11</td>
<td>.09</td>
<td>5.822</td>
<td>.020</td>
<td>-.335</td>
</tr>
<tr>
<td>Internal LOC</td>
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<td>.17</td>
<td>5.177</td>
<td>.028</td>
<td>-.304</td>
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<tr>
<td>External LOC</td>
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<td>.26</td>
<td>6.670</td>
<td>.013</td>
<td>.341</td>
</tr>
<tr>
<td>Powerful Others</td>
<td>.31</td>
<td>.26</td>
<td>6.670</td>
<td>.013</td>
<td>.341</td>
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</tbody>
</table>

Table 13: Stepwise regression analysis predicting health outcomes from personality and psychosocial variables among white older adults (n = 56).

Criterion Variable: ILLNESS
<table>
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<tr>
<th>Variable</th>
<th>R Square</th>
<th>Adj. R Square</th>
<th>F Change</th>
<th>Sig. F</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
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<td>11.423</td>
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<td>.44</td>
<td>7.346</td>
<td>.012</td>
<td>.411</td>
</tr>
</tbody>
</table>

Table 14: Stepwise regression analysis predicting health outcomes from personality and psychosocial variables among black older adults (n = 32).

Criterion Variable: ILLNESS