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Relationship between Psychosocial Stress and Allostatic Load: Findings from the MIDUS study

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Relationship between Psychosocial Stress and Allostatic Load: Findings from the MIDUS study

A dissertation submitted in partial satisfaction of the requirements for the degree of Doctor of Philosophy in Epidemiology

by

Stephanie Rummans Reading

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ABSTRACT OF THE DISSERTATION

Relationship between Psychosocial Stress and Allostatic Load:

Findings from the MIDUS study

by

Stephanie Rummans Reading

Doctor of Philosophy in Epidemiology

University of California, Los Angeles, 2015

Professor Teresa E. Seeman, Chair

Scientific evidence continues to accumulate that relates the experience of stress with overall poor health. However, defining what is meant by the term 'stress', in-order to examine its association with the experience adverse health, has been a difficult task for medical researchers. In the present investigation, using linear mixed effect regression analyses, we were interested in evaluating how the experience of psychosocial stress was related to one conceptualization of 'stress' as it impacts the human body, allostatic load. Allostatic load, proposed as 'the cost of chronic exposure to fluctuating or heightened neural or neuroendocrine response resulting from repeated or chronic environmental challenge that an individual reacts to as being particularly stressful' has been identified in the medical literature as mechanism that is associated with numerous negative health events, especially with regards to overall worse cardiovascular and immune system health. Our aim was to identify the extent to which a cumulative measure of

psychosocial stress was related to allostatic load, as well as, identify the relative contributions of eleven specific dimensions of stress to that relationship. We also evaluated whether and how these relationships were moderated by sociodemographic, health behavior and psychosocial resource characteristics, to better understand how psychosocial stress was related to allostatic load across various sub-populations. Data for the analyses were obtained from the Midlife Development in the United States (MIDUS) study, a national, longitudinal investigation with a purpose to investigate the role of the behavioral, psychological and social factors that account for the age related variations in health and well-being across a national sample of Americans. As presented within the written dissertation, further information is provided for readers as an overall introduction to the dissertation (Chapter 1), additional details regarding our proposed aims (Chapter 2), the background and significance for our line of inquiry (Chapter 3), the analytical methods that were implemented for the purpose of this investigation (Chapter 4), the results and findings from our analyses (Chapter 5), a discussion of the results and findings (Chapter 6) and then a highlight of the main study limitations (Chapter 7) along with our overall study conclusions (Chapter 8).

This dissertation of Stephanie Rummans Reading is approved.

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CHAPTER I. Introduction

We have all been told, at some point in our lives, that experiencing excessive and/or chronic stress can be bad. However, no one seems to have a clear definition as to what we mean by "stress" and what about the experience of stress can be considered harmful. This has created a challenge for medical investigators who wish to study stress and determine how stress is related to disease. To solve this problem, some researchers have broken down the stress response to identify the aspects of stress that may be responsible for the precipitation of disease. One of these proposed aspects is the accumulation of dysregulated patterns of activity in major physiological regulatory systems (i.e., allostatic load, 'the cost of chronic exposure to fluctuating or heightened neural or neuroendocrine response resulting from repeated or chronic environmental challenge that an individual reacts to as being particularly stressful' [1]). A growing body of evidence has suggested that individuals who experience a high level of allostatic load are at a significantly increased risk for worse health outcomes compared to those individuals with a low level of allostatic load. These worse health outcomes include poorer cognitive and physical functioning, a greater number of school absences due to illness among children, an increased incidence of cardiovascular disease, periodontal disease and 7-year mortality, as well as, suppression of the immune system with an elevated susceptibility to inflammatory and autoimmune disturbances. [2-12].

In light of such evidence, it is clear that further efforts are needed to identify the ways in which experiencing a heightened level of allostatic load might be prevented or, through secondary prevention, reduced. Although the developing research suggests that classic risk factors, particularly lower socioeconomic status [13-17], are associated with experiencing a higher level of allostatic load, the extent to which other definitive risk factors exist, that may

affect ones risk for high allostatic load, remains largely unknown. Among one of the central questions remaining is 'which risk factors for experiencing high allostatic load may be most susceptible to modification'? By identifying such modifiable risk factors, interventions can than be created to help reduce their negative impact. It may be that one set of potentially identifiable and also modifiable risk factors is psychosocial stressors.

The experience of psychosocial stress including work-related stress, perceived inequality, discrimination, undergoing family, relationship, financial and/or neighborhood stressors, as well as, stressful life events have been associated with the occurrence of both negative mental and physical health outcomes and with overall lowered functional measures of the immune system [18-27]. A possible explanation for this relationship is that one of the effects of experiencing one or more psychosocial stressors is to increase ones level of allostatic load and, thereby, predispose the individual to such adverse health outcomes. Upon further investigation it may also be that (1) certain psychosocial stressors are more strongly associated with allostatic load compared to other psychosocial stressors, (2) that a cumulative measure of psychosocial stress, comprised of experiencing multiple, simultaneous psychosocial stressors, is more strongly associated with allostatic load compared to experiencing any one particular psychosocial stressor and/or that (3) experiencing psychosocial stressors may be particularly noxious in their health impacts among certain population subgroups (e.g., being female versus male, or being a former smoker versus never smoker, or having a specific type of coping behavior). Stressors within such subgroups may have particularly strong impacts on ones risk for high allostatic load. As such, further investigation into possible relationships between psychosocial stress and allostatic load could serve to (a) identify a set of possibly modifiable risk factors for allostatic load and (b) identify

particularly high-risk subgroups that could most benefit from efforts to prevent or reduce the accumulation of allostatic load, in-order to decrease ones risks for downstream health outcomes.

For the present investigation, using linear mixed effect regression analyses, we examined the relationship between the experience of psychosocial stress and allostatic load using (1) a summary index measure of overall stress and (2) each of the eleven summary index component psychosocial stress domains. Data for the analyses were obtained from the Midlife Development in the United States (MIDUS) study. Our aim was to identify the extent to which a cumulative measure of psychosocial stress was related to allostatic load, as well as, identify the relative contributions of eleven specific dimensions of stress to that relationship. We also evaluated whether and how these relationships were moderated by sociodemographic, health behavior and psychosocial resource characteristics, to better understand how psychosocial stress was related to allostatic load across various sub-populations.

CHAPTER II. Specific Aims

All of our data came from the Midlife Development in the United States (MIDUS) study, a national longitudinal investigation that was initially funded by the MacArthur Foundation Research Network on Successful Midlife Development and subsequently by the National Institution on Aging. The MIDUS study participants were English speaking individuals living within the 48 contiguous United States, between the ages of 24-75 and selected from one of four random-digit dial samples: (1) a national sample, (2) oversamples within five metropolitan areas, (3) siblings of the national sample and (4) a distinct sample of twin pairs [28]. The structure of MIDUS included division into two waves: MIDUS I and MIDUS II. MIDUS I was conducted between 1995-1998. MIDUS II, which included 70% of the original MIDUS I participants, was conducted between 2004-2009. At MIDUS II, an additional sample of African-American's from Milwaukee was recruited to augment the African-American racial representation in the MIDUS sample. Biological data were then collected on a smaller subset (n=1,255) of those individuals from MIDUS II who were part of the (a) national random-digit dial sample, (b) the random-digit dial sample of twin pairs or (c) the African-American sample from Milwaukee, WI who were also willing to travel to one of three General Clinical Research Centers (GCRC) for an overnight visit. Of those individuals who were recruited to participate in this biological subsample, 39.3% agreed. Individuals who participated in this biological protocol were not different from the overall MIDUS II sample in terms of age, gender, race/ethnicity, marital status or income, but were more likely to have a college degree [29]. For the present analyses, our sample was restricted to those individuals from this biological subset (n=1,255), due to the data collection necessary for our outcome measure of allostatic load, to accomplish the following specific aims:

AIM 1

To assess the relationships of (a) our summary index measure of overall stress and (b) each of the eleven summary index component psychosocial stress domains with allostatic load, after controlling for sociodemographic characteristics that include age, gender, race/ethnicity, income, educational attainment and marital status.

Hypothesis 1

We predict that the summary index measure of overall stress will be positively associated with the experience of greater allostatic load.

Hypothesis 2

Consistent with the idea that a wide range of different stressors contribute to the overall impact of life stress on allostatic load, we hypothesize that each of the eleven summary index component psychosocial stress domains including: (1) psychological work stress, (2) physical work stress, (3) work-family spillover stress, (4) perceived inequality, (5) relationship stress, (6) neighborhood stress, (7) discrimination, (8) current financial stress, (9) past year problems in the immediate family, (10) stressful life experiences and (11) early life stress will be positively associated with the experience of greater allostatic load.

AIM 2

To further assess the relationships of (a) our summary index measure of overall stress and (b) each of the eleven summary index component psychosocial stress domains with allostatic load, independent of additional control for health behavior characteristics that include physical activity, smoking status and alcohol use.

Hypothesis 3

We predict that the relationships of (a) our summary index measure of overall stress and (b) each of the eleven summary index component psychosocial stress domains will continue to demonstrate the same positive associations that were predicted in hypotheses 1 and 2.

AIM 3: PART 1

To test the possible moderating role of (a) our sociodemographic characteristics that include: age, gender, race/ethnicity, income, educational attainment and marital status and (b) our health behavior characteristics that include: physical activity, smoking status and alcohol use with respect to the relationship between our summary index measure of overall stress with allostatic load.

Hypothesis 4

We predict that age, gender, physical activity, smoking status and alcohol use will moderate the relationship between the summary index measure of overall stress with allostatic load, such that a stronger relationship will be seen among females (as the literature has shown that women are more physiologically reactive to stress, such as through experiencing higher cortisol reactivity, compared to men), in younger ages (due to the literature showing that allostatic load scores in older individuals, >60 years of age, level off and remain remarkably constant) and among those who engage in poor health behaviors (currently smoke, have low levels of physical activity and are heavy users of alcohol; where the synergizing effects of these negative health behaviors with the negative aspects of the stress experience may lead to a greater burden of allostatic load among these individuals). Due to the majority of our sample being non-Hispanic white, we did not think that race/ethnicity (due to the lack of racial/ethnic variation in the MIDUS sample) would moderate the relationship between the summary index measure of overall stress with allostatic load in our sample. We also did not hypothesize that educational attainment would

moderate the relationship between the summary index measure of overall stress with allostatic load, due to the possibility that each of the educational attainment groups could experience high levels of stress, but from different psychosocial stress domains, leading to a mitigation of the moderating effect of educational attainment on this relationship. Lastly, we did not hypothesize that marital status (which can change over time) and income (as a less stable indicator of SES and of resources over time) would moderate the relationship between the summary index measure of overall stress with allostatic load.

AIM 3: PART 2

To test the possible moderating role of any significant moderators that are identified in the analyses from Aim 3: Part 1, with respect to the relationships between each of the eleven summary index component psychosocial stress domains with allostatic load.

Hypothesis 5

We predict that each of the eleven summary index component psychosocial stress domains will demonstrate a similar pattern of moderation as seen in Hypothesis 4.

AIM 4: PART 1

To test the possible moderating role of select psychosocial resource characteristics that include (a) six psychological well-being scales: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance, (b) nine coping scales: positive reinterpretation and growth, active coping, planning, focus on and venting of emotions, denial, behavioral disengagement, using food to cope, problem focused coping and emotion focused coping and (c) seven personality trait scales: neuroticism, extraversion, openness to experience, two versions of conscientiousness, agreeableness and agency with respect to the relationship between our summary index measure of overall stress with allostatic load.

Hypothesis 6

We predict that each of the selected psychosocial resource characteristics will act to moderate the relationship between the summary index measure of overall stress with allostatic load, as such resources serve to mitigate the perceptions and responses to stress, so that weaker relationships will be seen for those who also report (a) a greater degree of psychological well-being, (b) engagement in proactive coping behaviors and (c) express adaptable personality traits that include extraversion, openness to experience, conscientiousness, agreeableness and agency.

AIM 4: PART 2

To test a select number of possible three-way interactions, exploring the variations in our summary index measure of overall stress by each of our twenty-two psychosocial resource characteristics according to central sociodemographic characteristics including age, gender and educational attainment.

Hypothesis 7

We predict a similar pattern of moderation as seen in Hypothesis 6, especially among individuals who are younger and individuals who are more highly educated (as a proxy for high SES), with a particular emphasis on women with respect to the internalizing coping behaviors (denial, behavioral disengagement, using food to cope, emotion focused coping) and on men with respect to the externalizing coping behaviors (active coping, focus on and venting of emotions and problem focused coping), where men may cluster at low levels of internalizing behaviors and women cluster at low levels of externalizing behaviors, lessening the impact of that type of coping behavior within the gender showing the clustering of behaviors.

CHAPTER III. Background and Significance

"Everybody knows what stress is and nobody knows what stress is"
Hans Selye, 1976, "The Evolution of the Stress Concept"

3.1 Stress

What is "stress"? Before 1936, the term stress was a general concept used largely by physicists to describe the amount of "pressure or tension exerted on a material object [30]". Nevertheless, the groundwork for explaining what we now think of as "biological stress" began forming as early as 1854. A French physiologist by the name of Claude Bernard developed the notion of "milieu intérieur", which he referred to as this idea that our body is constantly regulating its internal environment to adjust to meet its external demands [31]. At the time, this was a major discovery for the scientific community, yet the knowledge of "milieu intérieur" was mostly ignored by the medical researchers of his era. It wasn't until the early 1900s, when human physiologist Walter Cannon began exploring the principles behind the physiology of human emotion that Bernard's work was recognized for its scientific importance. Cannon built upon Bernard's theories and published two path-breaking works, one in 1915 titled "*Bodily Changes in Pain, Hunger, Fear and Rage: An Account of Recent Researches into the Function of Emotional Excitement*" which he introduced researchers to the "flight or fight" response describing the "instinctive physiological response to a threatening situation which readies one to either forcibly resist or to run away" and the second in 1932 titled "*The Wisdom of the Body*" where he popularizes the term "homeostasis", which he coined earlier in 1926 [32] to describe "the maintenance of steady states in the body and the physiological processes through which they are regulated" [33]. Both of these concepts, the "flight or fight" response and "homeostasis," were used to collectively describe how humans are designed to respond in a relatively distinct manner when they are exposed to an environmental agent.

As Cannon's works started to gain popularity, other researchers initiated their own avenues of investigation into these physiological phenomena. Of particular significance was work by the endocrinologist Hans Selye who was intrigued by the findings of both Bernard and Cannon. In 1936, Selye wrote a letter to the editor of Nature titled "*A Syndrome Produced by Diverse Nocuous Agents [34]*" in which he introduced his new theory, the General Adaptation Syndrome. In his writing he detailed the first stage of his syndrome, the alarm reaction, such that a "non-specific adaptive response [is seen when the organism is exposed] to various kinds of agents" [35]. In subsequent papers he included two additional stages, the stage of resistance and the stage of exhaustion. In the stage of resistance, also known as the stage of adaptation, he described how the body modifies itself to meet any perceived excessive demands. The stage of resistance is then followed by the stage of exhaustion, where the body is no longer able to adjust to meet these perceived excessive demands and the immune system fails leading the organism to become susceptible to disease and illness. In 1950, Selye, renamed these three stages of the General Adaptation Syndrome as the "biological stress response" [36]. It was then that the word "stress" in relation to biology was born.

For the rest of his career, Selye continued to build upon his model of the biological stress response [37]. He came to define stress as "the non-specific adaptive response of the body to any demand made upon it" [38]. He recognized that there is a distinct difference between the terms "stress" and stressor", with the later being the "stress-producing factors" and the former being the "response to the stressor". What constituted as a stressor could be vastly different based on differences of the individual according to both their perception and interpretation of the situation and also the conditions of the body including genetics, gender, and developmental stage [1]. However, the response to the stressor, or the biological stress response, was quite similar across

individuals regardless of the type of stressor being experienced. He noticed that “people respond in a rather stereotypical pattern, with nearly identical biochemical changes taking place, that are meant to fundamentally cope with any type of increased demand that is placed upon the human machinery” [38]. This meant that, to a certain degree, researchers could study the biological stress response in a unified and systematic manner and, subsequently, examine how when the biological stress response fails or responds inadequately, what are the effects on the human body? Now considered the “father of the stress concept”, Hans Selye’s foundational work in biological stress continues to evolve with the help of present day scientific stress researchers in working to clarify what is meant by the notion of the “biological stress response” and also in identifying some of the more prominent aspects of the biological stress response that may be responsible for the precipitation of disease, one, for example, being allostatic load.

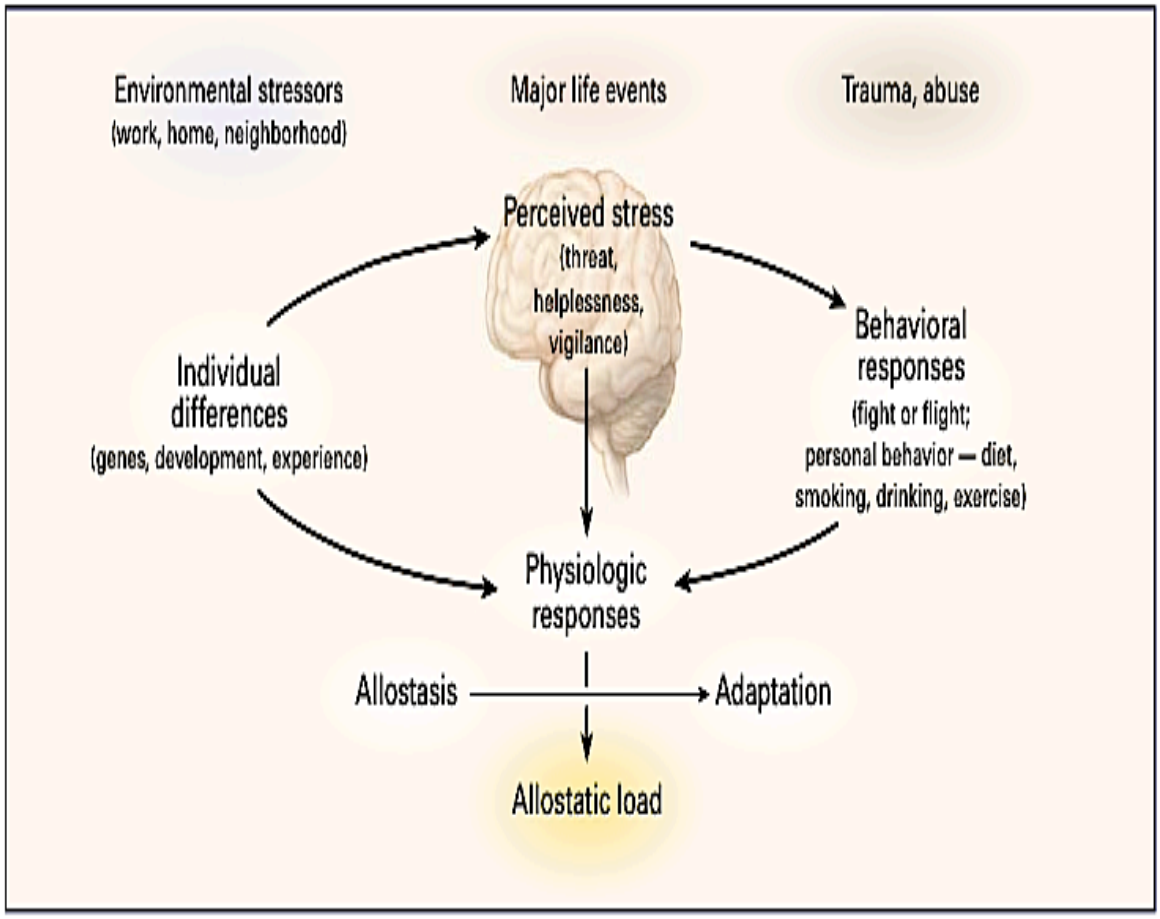
3.2 Allostasis and Allostatic Load

In order to understand what is meant by ‘allostatic load’, one must first understand what is meant by the term ‘allostasis’. Allostasis, a concept first developed by Peter Sterling and Joseph Eyer in 1988, literally means “stability through change”. It has been used to describe how the physiological parameters of the human body co-vary when there is a change in the behavioral or psychological state of the organism [39]. In order to maintain healthy functioning, allostasis “requires the ongoing adjustments of ones internal physiologic milieu and the result is the physiologic systems exhibiting fluctuating levels of activity as they respond to and adapt to meet their environmental demands” [2]. This contrasts with the earlier concept of homeostasis, which emphasizes the “importance of maintaining constancy of ones "milieu intérieur" as the hallmark of healthy functioning” [2]. Whereas the latter focuses on optimal set points, the former highlights optimal operating ranges as the benchmark for normalcy and stability. Both of these

terms, allostasis and homeostasis, have their uses in human physiology, with allostasis being an essential component of the body's ability to maintain homeostasis, but allostasis becomes a more suitable term when describing our biological systems such as the cardiovascular system, the immune system, the autonomic and central nervous system and even our metabolic machinery, which require operating within a set range in order to sustain healthy functioning [4]. It is then the failure of these systems to operate within their normal ranges over a prolonged period of time (the inability to turn-on or shut-off the response) or after excessive 'wear and tear that the body experiences' due to repeated cycles of the body attempting to maintain allostasis that can lead to what has been called "allostatic load" and what has been hypothesized as a mechanism leading individuals to disease [1, 40].

In a review paper published in 1998 in the New England Journal of Medicine titled 'Protective and Damaging Effects of Stress Mediators', Dr. Bruce McEwen provided the following illustration that demonstrated how the idea of 'stressors' and 'perceived stress' relate to the concepts of 'allostasis' and 'allostatic load' (Figure 3.1) [40]. In the illustration, the concepts of allostasis and allostatic load are described as 'a cascade of cause and effect that begins with the primary stress mediators leading to primary effects and then to secondary and tertiary outcomes'. The primary stress mediators of allostasis, or the chemical messengers that are released as a part of allostasis, include the 'adrenal steroids and catecholamines, DHEA, prolactin, growth hormones and the cytokines related to the immune system, as well as, local tissue mediators like the excitatory amino acids' [41]. The primary effects are considered 'cellular events, like enzymes, receptors, ion channels or structural proteins induced genomically or phosphorylated via second messenger systems that are regulated as part of allostasis by the

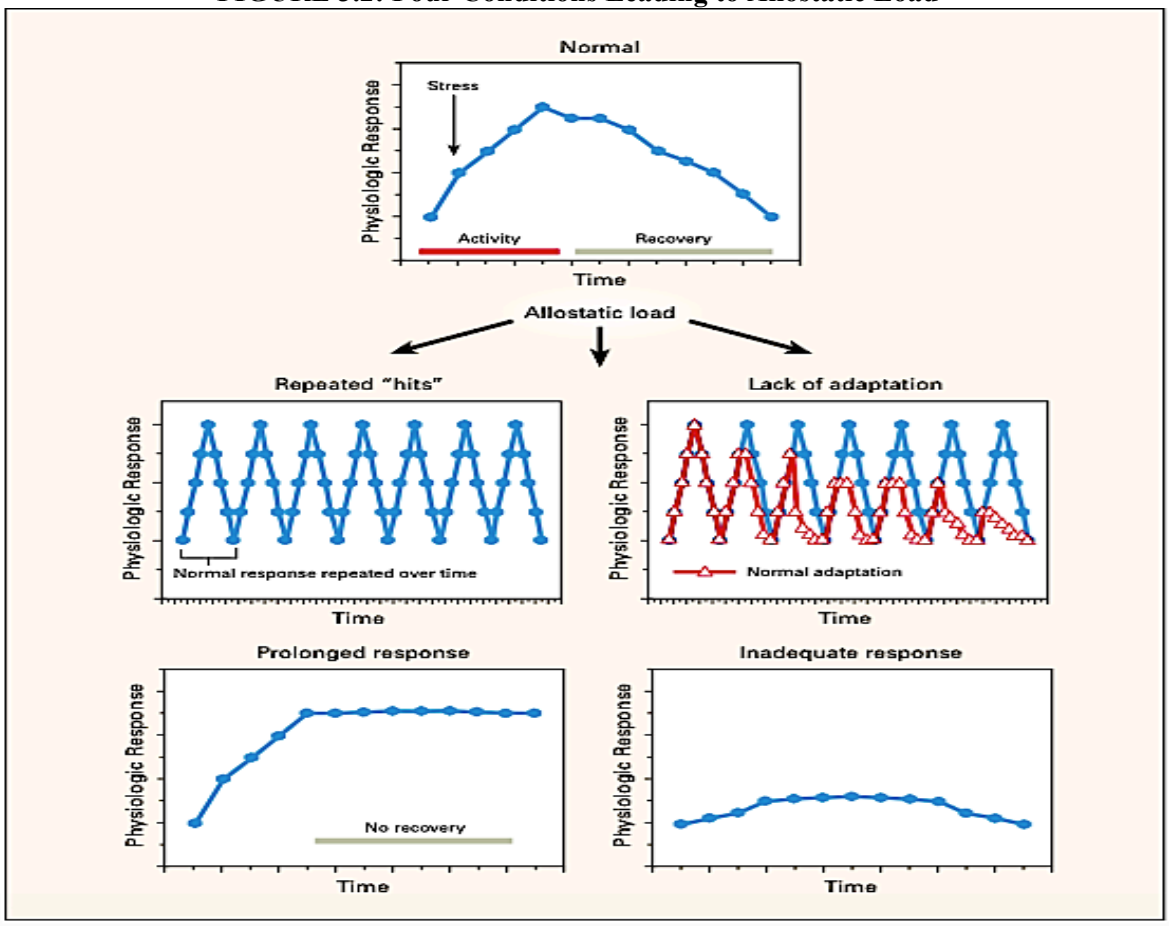
FIGURE 3.1: The Stress Response and Development of Allostatic Load



primary mediators' [41]. Secondary outcomes are the 'integrated processes that reflect the cumulative outcome of the primary effects in a tissue/organ specific manner in response to the primary mediators' [41]. The tertiary outcomes are then the 'actual diseases or disorders which are the result of allostatic load that is predicted from the extreme values of the secondary outcomes and of the primary mediators' [41]. As depicted over time, allostatic load, proposed in 1993 by Dr. McEwen and Dr. Eliot Stellar as 'the cost of chronic exposure to fluctuating or heightened neural or neuroendocrine response resulting from repeated or chronic environmental challenge that an individual reacts to as being particularly stressful' [1], 'can accumulate and the overexposure to mediators of neural, endocrine and immune system stress can have adverse effects on various organ systems leading an individual to disease'.

In his review, Dr. McEwen also highlighted four proposed conditions that can lead to this experience of allostatic load (see Figure 3.2) [40]. The first condition is comprised of individuals

FIGURE 3.2: Four Conditions Leading to Allostatic Load



who are exposed to frequent novel stressors. These individuals experience a normal stress response but they experience it more often than they should ('repeated hits') and can, therefore, wear out their physiological systems faster than someone who experiences less frequent novel stressors. The second condition is the inability of the physiological system(s) to shut down the stress response after being turned on by the stressor ('prolonged response'). These individuals experience an abnormal stress response, for once their stress response is turned on, it does not turn off as quickly as it should. The third condition is a 'lack of adaptation' to stressors of the same type. The pattern of physiological reactivity that is seen here is similar to the pattern of

those who are exposed to frequent novel stressors. The difference is that, in this case, the stressor is not novel. Nonetheless, rather than slowing any adaptation (e.g. , through learning to cope with the stressor), the individual repeatedly displays a strong stress response when he or she is exposed repeatedly to the same stressor. The fourth condition is an inadequate stress response by an allostatic system. Since the human body is one large system, comprised of multiple subsystems that maintain the larger system, those individuals who exhibit an inadequate stress response may experience allostatic load as the failure to mount an adequate initial "stress response" leading to a cascade of inadequate responses of other linked regulatory systems. In all four conditions, once the individual experiences allostatic load it can then lead to "the gradual wear and tear of the body and brain due to the chronic over-activity or inactivity of the physiological systems that are normally involved in the adaptation to the environmental challenge". It is this experience that can weaken the immune system, the cardiovascular system, the metabolic system, the brain and the central nervous system leading individuals to experience adverse health events associated with physiological system failure. Thus, having a higher level of allostatic load has been hypothesized as one possible mechanism that may increase an individual's risk and susceptibility to disease and disability.

Studies that examine the effects of high allostatic load have found instances of both cognitive and physical impairment among those with high allostatic load scores [42]. Data from the MacArthur Studies of Successful Aging have shown that higher allostatic load scores, independent of sociodemographic and other health status risk factors, are associated prospectively with poorer cognitive and physical functioning, as well as, with an increased risk for the incidence of cardiovascular disease in a cohort of older men and women [2, 6, 7]. Data from the National Health and Nutrition Examination Survey (NHANES) found that high

allostatic load scores were significantly associated with the odds of sleep apnea, sleep apnea symptoms, insomnia, short sleep duration and diagnosed sleep disorders [43]. Similar findings have been shown among high-risk subgroups, for example chronic fatigue syndrome patients, where a high level of allostatic load was significantly associated with overall worse health, increased bodily pain, poorer physical functioning and greater general symptom frequency and intensity [10, 44]. Among a minority group of Puerto Ricans living in the United States, from the Boston Puerto Rican Health Study, it was found that increasing categories of allostatic load scores were significantly associated with an increased odds of abdominal obesity, hypertension, diabetes and self-reported cardiovascular disease and arthritis [45]. Comparing white women to black women, it was found that having a history of breast cancer was associated with elevated allostatic load among black women, suggesting that the biological toll of breast cancer may be greater in black women compared to white women [46]. There have also been comparable findings among young adults. Catharine Johnston-Brooks and colleagues have identified allostasis, and subsequently allostatic load, as a underlying mechanism in the link between chronic stress and health in children [3]. It has been shown that age at menarche among young women occurs earlier for women who have higher allostatic load scores [47], which may be a sign of increased personal stress among those women. For boys, having high allostatic load was associated with an increased likelihood of prevalent and new-onset asthma [48].

As shown, there is a widespread list of negative health outcomes that are associated with high levels of allostatic load. Even when examining the components of allostatic load, so the failure of one or more of the human physiological systems to operate within their set ranges, numerous adverse health events can occur. For example, chronic activity or inactivity of the cardiovascular system can lead to hypertension, incident strokes and myocardial infarctions.

Breakdown of the metabolic system can lead to obesity, diabetes and atherosclerosis. Failure of the immune system can lead to inflammatory and autoimmune disorders and inadequate functioning of the brain and central nervous system can lead to neuronal atrophy and death of nerve cells.

Nonetheless, in light of such evidence associating high allostatic load with negative health outcomes, new research has shown that reductions in allostatic load levels are associated with a reduced mortality risk [9]. However, to date, there have been no interventions created to target the systematic reduction of allostatic load in any high-risk or general population of individuals. Indeed, the full array of factors that predispose an individual to higher allostatic load remains to be identified, making it difficult to crate such an intervention, but one potentially fruitful area of investigation may be to focus on identifying the potentially modifiable risk factors for allostatic load. The risk factors for allostatic load that could be intervened upon if such an intervention were to be created. Looking at and examining psychosocial stressors may be one such set of risk factors.

3.3 Psychosocial Stress

Psychosocial stress has been defined since the 1960's as an 'aversive or demanding condition that taxes or exceeds the behavioral resources of the organism' [49]. As such, it is no surprise that the experience of psychosocial stress has been associated with the occurrence of both negative mental and physical health outcomes and with lowered functional measures of the immune system [25, 26]. Specifically, studies have shown that psychosocial stress can negatively affect the cardiovascular system (e.g., increasing ones risk for the development of coronary heart disease (CHD) [50, 51] and incident myocardial infarctions [24]), increase the progression of disease for individuals living with HIV/AIDS [26, 52], contribute to negative effects on almost

all functional measure of the immune system [25], increase ones risk for dermatological disorders [53], as well as, contribute to the onset or exacerbation of conditions such as upper respiratory infections [23], cancer [54], asthma and atopy [55, 56], multiple sclerosis [57], rheumatoid arthritis [58], Grave's Disease [59] and diabetes mellitus [60], to name a few. It has been hypothesized that these associations, between the experience of psychosocial stress and having an adverse health outcome, may be due to the occurrence of psychosocial stress within the individual precipitating or exacerbating the negative health condition(s) [26, 27, 61].

However, as we all know, all individuals experience stress differently. Even reactions to the same stressor may vary by population sub-groups or between individuals within the same population. Whether it is a certain type of psychosocial stressor that is associated with the most damaging effects or more generally the experience of cumulative psychosocial stress, from multiple or repeated sources, that is the most harmful, it has been a challenge for medical researchers to tease out the specific associations between psychosocial stress and experiencing adverse health outcomes.

What researchers do know is that the association across certain sociodemographic subgroups based on age [62], gender [63-65] and socioeconomic status [13, 66, 67] as well as, across certain health behavior characteristics including how much one engages in physical activity [68], smokes [69] and uses alcohol [70] have been shown to be predictive indicators of ones health status and may alter the association between psychosocial stress and poor health. Furthermore, there are certain characteristics of the individual that can make the association between psychosocial stress and adverse health mitigated or exacerbated. One such set of characteristics are psychosocial resources that include how one interprets his/her level of psychological well-being [71, 72], what types of coping behaviors does the individual display

when faced with a stressor [49, 73-75] and what are the personality traits of the individual that may enhance or lessen ones resilience towards an experienced stressor [76-78]. When studying the association between psychosocial stress and negative health, it is therefore imperative to take into account such differences.

For the present investigation, we are interested in assessing the relationship between psychosocial stress and allostatic load, which, if identified as having a positive association, may highlight a potential precursor pathway in the link between allostatic load and adverse health events, as well as, identify a set of potentially modifiable risk factors for increased allostatic load scores. We will examine how (1) a summary index measure of overall stress is associated with allostatic load and also (2) how eleven specific psychosocial stress domains are associated with allostatic load, with each domain being a component of the summary index measure of overall stress. To further evaluate these associations, we will also examine the moderating role of six sociodemographic characteristics (age, gender, race/ethnicity, income, educational attainment and marital status) and three health behavior characteristics (physical activity, smoking status and alcohol use), as well as, psychosocial resource characteristics that include six measures of psychological well-being (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance), nine coping behaviors (positive reinterpretation and growth, active coping, planning, focus on and venting of emotions, denial, behavioral disengagement, using food to cope, problem focused coping and emotion focused coping) and seven personality traits (neuroticism, extraversion, openness to experience, two versions of conscientiousness, agreeableness and agency).

CHAPTER IV. Methods

4.1 Overview of the Midlife Development in the United States (MIDUS) Study

The Midlife Development in the United States (MIDUS) study is a national, longitudinal investigation that was initially funded by the MacArthur Foundation Research Network on Successful Midlife Development and subsequently by the National Institute on Aging. Through a collaborative effort from researchers in the areas of psychology, sociology, epidemiology, demography, anthropology, medicine and health care policy, the MIDUS study was formed for the purpose of "investigating the role of the behavioral, psychological and social factors in accounting for the age related variations in health and well-being in a national sample of Americans" [79]. Over the course of two waves, MIDUS I and MIDUS II, with data collected from 1995-1998 and 2004-2009, respectively, the MIDUS study aimed to provide researchers with the materials necessary to examine the key health issues affecting individuals in the middle years of their life and to help to identify some of the most important risk factors and determinants for achieving good health as an adult

The first wave of MIDUS, MIDUS I, began as one main study and sequentially added multiple secondary studies to 'investigate the patterns, predictors and consequences of midlife development in the areas of physical health, psychological well-being and social responsibility' [28]. The methodology for the main study included conducting telephone interviews and distributing self-administered questionnaires (SAQs) to individuals classified as a member of one of four distinct populations. These populations included the general United States population, oversamples from five metropolitan areas, siblings of individuals selected from the general population and metropolitan areas, and members of twin pairs. Data collected assessed both physical and mental health issues, as well as, the lifestyle choices of the individuals who

participated in the study. The multiple smaller-scale secondary studies, considered 'studies within a study' designed to target specific research areas, were completed on individuals who agreed to participate following completion of the MIDUS I main study. These studies included conducting investigations such as an in-depth examination into the quality of life issues among minority groups [80], identifying which day-to-day experiences individuals consider to be the most stressful [81], how best to manage and balance day-to-day work activities [82], deciphering the relationship between family and health and classifying the common perceptions of psychological change in life [83]. Due to the success of the MIDUS I, a second wave of data, MIDUS II, were collected to assess the longitudinal health patterns of the original MIDUS I respondents, as well as, create new studies and extended question sets that could further examine the course of health in midlife development.

At the initiation of MIDUS II, a total of five distinct studies were created. The first of these studies was the resurvey of all of those who participated in the MIDUS I main study, known as the MIDUS II resurvey study [84]. Data collection measures included conducting follow-up telephone interviews and distributing additional mailed questionnaires to obtain information on all of the domains that were originally assessed during the MIDUS I main study (baseline). The second study, referred to as the daily stress study, implemented the collection of an 8-day daily stress diary, including 4 days of diurnal cortisol assessments, on a total of 2,022 MIDUS II resurvey participants for evaluation of the impact of stress on health [85]. The third study, known as the cognitive study, used a telephone modality to assess cognitive functioning (a new addition at MIDUS II) to explore how cognition is related to overall physical and mental health on all of those who participated in the MIDUS II resurvey study [86]. The fourth study, referred to as the biomarker study, recruited a subsample (n=1,255) of individuals who

completed the MIDUS II resurvey study to collect extensive biomarker data that could be used to 'facilitate analyses integrating both behavioral and psychosocial factors with biology, in-order to identify the bio-psychosocial pathways that contribute to diverse health outcomes' [87]. The fifth study, known as the neuroscience study, collected in-depth EEG and MRI data on 331 individuals who participated in the MIDUS II biomarker study to collect information assessing the individual differences in 'central brain circuitry and brain morphology to predict the comprehensive array of health, cognitive, psychological, social, and life challenge factors assessed in the other MIDUS II studies' [88]. In addition, to augment the African-American representation in MIDUS, an African-American sample was recruited during the time of the MIDUS II resurvey study, from Milwaukee, to participate in all five of the MIDUS II studies allowing for further examination of health issues within a minority population [89].

For the present investigation, due to our focus on a measure of allostatic load as our primary outcome, inclusion in our analyses was restricted to only those individuals who completed the MIDUS II biomarker study (n=1,255), for whom a measure of allostatic load could be calculated. Any additional data that was necessary for our analyses were drawn from the MIDUS II resurvey study. No additional data collected from the other MIDUS studies were utilized and will, therefore, not be further addressed.

4.2 Study Participants and Sampling

MIDUS I Main Study

All of the individuals who completed the MIDUS II biomarker study were initially members of the MIDUS I main study, with the exception of the African-American supplemental sample that was obtained at MIDUS II. Therefore, our study participants were the same as those who participated in the MIDUS I main study and included English speaking, non-

institutionalized adults, between the ages of 24 and 75, residing within the 48 coterminous United States. For the MIDUS I main study, a total of 7,108 individuals were recruited to participate, with 6,329 of these participants completing all of MIDUS I measures, coming from one of four national population subsamples [28]. These subsamples included (1) a national random digit dial (RDD) sample, (2) an RDD oversample in of one of five (Boston, Atlanta, Chicago, Phoenix or San Francisco) metropolitan areas, (3) a sibling of a participant selected from one of the first two RDD samples or (4) twin pairs selected from of a national RDD screening for twin pairs. However, only two of the four population subsamples carried over into the MIDUS II biomarker study, which were the (1) national random digit dial (RDD) sample and (4) the twin pairs selected from a national RDD screening for twin pairs, therefore, only the sampling methods for these two population subsamples will be described further.

The participants who were included in the national RDD sample (n=3,487), were obtained through an equal probability RDD sample of working telephone numbers within the coterminous United States. For each household that was telephoned, a record was generated that included a separate entry for each individual who was between the ages of 25 and 74 years of age. A random respondent was then selected from the generated list of eligible participants. This respondent was asked if they would be willing to participate in a survey through the Harvard Medical School designed to study health and well-being during the middle years of life. The respondent was also told that participation would entail completing a telephone interview and two self-administered questionnaires. If the respondent was unsure about participation in the study, the interviewer mailed a study fact brochure to the respondent's home and a follow-up telephone appointment was scheduled to discuss their decision to participate after receipt of the

study fact brochure. Members of the senior study staff were made available to respondents who requested information that was not available within the study fact brochure.

One of the goals of the MIDUS I investigation was to attain an oversample of elderly males within the national population subsample. Therefore, to achieve this necessary oversample, the probability of carrying out the interview with the respondent was varied as a joint function of the age and sex of the selected respondent. No other individual in the household was selected to participate if the selected respondent chose not to participate or complete the telephone interview.

Of the participants who were members of twin pairs, the participants were recruited through a two-part sampling design. The first part of the sampling design implemented a screening of a nationally representative sample of approximately 50,000 households for the presence of a twin (as part of ongoing national omnibus surveys). Of the households screened, 14.8% of the households that were successfully contacted reported having at least one set of twins within the family. Those households reporting having at least one set of twins within the family, if it wasn't one of the twins who was initially contacted, were further asked for their permission for members of the research team to contact each of the twins within their family to ask them if they would be willing to participate in the MIDUS survey. Of the 60% of household respondents who gave their permission to contact the twin pairs, the second part of the sampling design was to then contact each of the members of the twin pairs. Cooperating twins were asked to provide the contact information for their co-twin, when necessary. Complete information was obtained from 957 twin pairs (n=1,914).

MIDUS II Resurvey Study

Although our study sample was restricted to those individuals who completed the MIDUS II biomarker study, some of our data, including the data for our psychosocial stress measures and psychosocial resource characteristics, were obtained from the MIDUS II resurvey study. For the MIDUS II resurvey study, every attempt was made by the research team to contact the participants from the original MIDUS I main study to recruit them to participate in the follow-up MIDUS II resurvey study. Of the 7,108 individuals who participated in telephone interview for the MIDUS I main study, a total of 4,963 participants agreed to complete an additional telephone interview and 4,032 participants agreed to complete two additional SAQs for the MIDUS II resurvey study [84]. Of the 30% of MIDUS I main study participants who did not participate in the MIDUS II resurvey telephone interview, 12% refused, 10% could not be contacted and approximately 8% were too ill to be interviewed or deceased (as confirmed by the National Death Index) [84].

One-week before being contacted by a telephone interviewer to participate in the MIDUS II resurvey study, a personalized advance letter with an accompanying brochure, designed to remind the individual of their past participation in the MIDUS I main study, was sent to all of the original MIDUS I main study participants. Sampling for the MIDUS II resurvey study was then initiated by dividing the participants from the MIDUS I main study into 24 replicates of approximately 300 cases, with one replicate group to be contacted each week during the duration of the study period. These replicate groups were not perfectly random. The initial replicates were created so that they included only the cases that lived within the correct geographic areas, making it easier for the respondents to participate in the other MIDUS II studies after completing the MIDUS II resurvey study. The siblings and twins were fielded in separate, distinct replicates so that progress within those subgroups could be easily monitored during the duration of the

study period. Each case within a designated replicate group had at least one call attempt, as many as 20 call attempts, made during the week in which that specific replicate group was being fielded. When an individual was contacted to participate, information from their MIDUS I main study interview was used to remind the individual of their past participation in the MIDUS study and also to encourage them to participate in the MIDUS II resurvey study. Contact information for the participant was found through a tracing database and the information within that database was updated when necessary. A toll-free respondent line was also created for individuals to directly call the study interviewers in-order to maximize the researchers opportunities to make contact with the study participants. This toll-free line was separate from the general Survey Center toll-free number. It included a voicemail box instructing callers to leave a message regarding scheduling an interview or questions on payment procedures if no one answered the telephone call. Participants received this toll-free number on their personal voicemail boxes when the interviewers were having difficulty contacting the participant, as well as, having it written in the one-week advance letters that were sent out to all of the participants from the MIDUS I main study.

As a supplemental sample for the MIDUS II investigation, a city-specific oversample of African-Americans from Milwaukee was recruited to participate in all of the MIDUS II studies (n=592). Eligible participants were those who identified as being African-American, between the ages of 35 and 85, who resided within the Milwaukee, Wisconsin area and who were willing to complete an initial in-person interview [89]. Information collected during the in-person interview paralleled the information collected during the MIDUS II resurvey study telephone interview. The response rate for participation in this supplemental sample was 70.7% among those who were sampled [89]. Subsequently, out of the 592 participants who completed the in-person

interview, 398 individuals completed the SAQ. The response rate for completing both the in-person interview and the SAQ was 67.2% [89].

For the Milwaukee supplemental sample, participant recruitment was conducted through a stratified area probability sample of households that resided within the Milwaukee County, Wisconsin area. The sampling frame included the census tracts where at least 40 percent of the population was African-American. The census blocks were stratified by income, with approximately half of the tracts having a median household income of $40,000 or greater and the other half having a median household income below $40,000. Of the 3,565 households fielded, 419 were determined ineligible (vacant, not an actual house, etc.) after they were canvassed door-to-door by the interviewer. Of the remaining 3,145 households, 2,308 were further found to be ineligible due to not meeting the age and gender screening requirements. Thus, a total of 73.4% of the original 3,565 households were screened-out. Of the final households, participants were selected according to their ability to fulfill one of eight cells. These cells were designated according to whether or not the participant was male or female, between the ages of 35-54 or 55-85 and above or below $40,000 as their median household income. The goal was to have 50 participants in each of the eight cells with a total of 400 participants in the Milwaukee supplemental sample. Most of the cells exceeded the allotted 50 participants, however, for the age group between 55-85, three of the four cells only had between 37-46 participants.

MIDUS II Biomarker Study

After participants had completed the MIDUS II resurvey study, they were then eligible to participate in the remaining four MIDUS II studies. For the MIDUS II biomarker study, which contained the foundational data for the present investigation, eligible participants were those individuals who were classified as a member of one of two groups. The first group contained

those individuals who completed all of the components of the MIDUS II resurvey study and were also part of either the national RDD or the twin RDD subsample population (n=1,054). The second group contained those individuals who completed all of the study components to be a member of the MIDUS II Milwaukee supplemental sample (n=201). Out of the 3,191 individuals who were eligible to participate in the biomarker study, complete information was obtained from a total of 1,255 participants (39.3% response rate) [87].

The recruitment process for the biomarker study was carried out in two phases. The first phase involved the staff at each of the three designated MIDUS General Clinical Research Centers (GCRCs) (at the University of California in Los Angeles, CA, the University of Wisconsin in Madison, WI and Georgetown University in Washington, D.C.) sending out a recruitment packet (a letter and brochure describing the goals and methods of the study) to all of the eligible biomarker study participants. A few weeks after sending out the recruitment packet, the GCRCs research staff called each of the eligible participants offering to answer any questions that the individual may have regarding participation in the biomarker study. If the eligible participant then agreed to participate in the biomarker study, the research staff scheduled a GCRC appointment and facilitated any necessary travel arrangements. Verbal consent was obtained when the individual agreed to participate in the biomarker study and then confirmed after scheduling the GCRC visit. Written consent was obtained at the GCRC, prior to beginning any data collection procedures.

4.3 Data Collection

MIDUS II Resurvey Study

Data collection methods for the MIDUS II resurvey study paralleled the data collection methods from the original protocol (a telephone interview and two self-administered

questionnaires) used during the MIDUS I main study and began on January 2nd, 2004 [84]. The telephone interview, through the use of computer-assisted telephone interviewing (CATI), was based on the MIDUS I main study telephone interview with the inclusion of selected additional question sets (for example, questions on cognitive functioning, optimism and coping, stressful life events and caregiving). Each interview lasted approximately 30 minutes in length. If the participant completed the telephone interview, within one-week of completion a check for $25 was sent to the participant's home address. One-week after the participant received the check for completing the telephone interview, the participant was asked if he/she would be willing to complete two SAQs, each of about 57 pages in length. If the participant agreed, the SAQs along with a letter explaining how to complete the SAQs, a tape measure for providing body measurements, a business reply envelope to send back the completed SAQs and two $5 bills as a pre-incentive for completing the questionnaires were mailed to the participant. When the participant returned the completed SAQs, within one-week he/she was mailed an additional check for $25. If he/she did not return the SAQs within the first week after they were mailed to the participant, a reminder postcard was sent to the participant encouraging he/she to complete the SAQs. If the participant did not complete the SAQs within five-weeks, copies of the initial questionnaires and materials, without the $10 incentive, were mailed to the participant. Three-weeks after the second mailing, if the participant still had not completed and returned the SAQs, an additional copy of the initial questionnaires and materials, again without the $10 incentive, were mailed to the participant. Three months after the third mailing, if the participant still had not completed and returned the SAQs, a reminder telephone call was implemented to urge the participant to complete and return the SAQs.

Toward the end of the MIDUS II resurvey study field period, the study's principal investigators created a telephone version of the SAQs that contained approximately 25% of the original items that were included within the written SAQs. These questions were a reflection of the content areas that the principal investigators felt to be the most valuable, given the limited number of questions that were considered viable for a telephone survey with a shorter length compared to the SAQs. This method of data collection was called the SAQs by telephone effort and was used on all participants who had not yet completed the SAQs by the summer of 2006. Of those individuals who had to be contacted, due to not completing the written SAQs, nearly half of them completed the SAQs by telephone effort. Completed SAQs were accepted until September 1st, 2006. Direct Data Entry (DDE), a modified version of CATI, was implemented to collect the data from the SAQs. Although part of the MIDUS II resurvey study sample included twin pairs, no additional information was needed to ascertain these twin pairs since the MIDUS I main study implemented a short screening survey to assess zygosity and other twin-specific information that was retained for all of the MIDUS II studies.

Data collection methods for the Milwaukee supplemental sample employed the same protocol that was used during the MIDUS II resurvey study [89]. The one additional data collection method that was implemented for the Milwaukee supplemental sample was the use of a personal in-house interview. This in-house interview used both computer-assisted personal interview (CAPI) and audio computer assisted self-interview (ACASI) techniques to determine if the selected individual met study inclusion criteria, instead of using CATI as in the MIDUS II resurvey study. Information that was collected during the in-person interview paralleled the information that was collected during the telephone interview for the MIDUS II resurvey study. However, questions may have been asked in a different order. Following successful completion

of the in-person interview, participants were then asked if they would be willing to complete a 50 page SAQ to be returned to the study center within the next two weeks. Data collected from this SAQ included the same data that were collected for the SAQs in the MIDUS II resurvey study, with the exception of some questions and content areas being omitted. The participant received $50 for completing the in-person interview and $20 for completing the SAQ.

MIDUS II Biomarker Study

On July 30th, 2004, data collection began for the MIDUS II biomarker study [87]. Multiple non-disease specific data collection methods were employed to attain information from participants on biological indicators of both physiology and health, as well as, on aspects of the individual's psychosocial experience. All data, with the exception of the sleep assessments, were collected during a 24-hour stay at one of three General Clinical Research Centers (GCRCs). These three research centers included the University of California in Los Angeles, CA, the University of Wisconsin in Madison, WI and Georgetown University in Washington, D.C.. The protocol for the 24-hour visit was standardized across each of the GCRCs and included data collected through written assessments, staff administered interviews and physical and physiological exams. Completion of these data collection methods was as follows: Day 1 (late afternoon or evening on the day when the person arrived at the GCRC) the participant completed (a) a medication chart, (b) a 25-page medical history questionnaire that included information on the participant's health behaviors and significant life events since completing the assessments for the MIDUS II resurvey study, (c) a 25-page SAQ assessing the participant's psychosocial experiences, (d) the 2-page Pittsburgh Sleep Questionnaire (PSQ), (e) the Physical Exam Long Version (Wisconsin study site only) as part of a comprehensive, but not invasive, physical exam and then (f) began the initiation of a 12-hour urine collection (starting at 7pm on day 1 and

ending at 7am on day 2). On Day 2 (the morning of the day the person left the GCRC) at 7am the 12-hour urine collection was completed and a fasting blood draw was taken. The participant was then asked to complete (a) a psychophysiology experimental protocol, with integrated saliva samples, that included two 6-minute cognitive challenges followed by a 6-minute standing challenge for assessment of physiological reactivity and (b) the Physical Exam Short Version (Functional Assessments) as a basic physical exam. Additional assessments were also utilized within the two-day data collection window, unless otherwise stated, including (a) a bone densitometry scan to examine bone health (completed on either day 1 or day 2), (b) assays for select blood based biomarkers, (c) for the Wisconsin site only, sleep efficiency assessed via an Actiwatch-64 activity monitor, worn continuously for 7 days after GCRC visit, and (d) a daily sleep diary. The biomarker data collected was reflective of a range of major regulatory systems that included the hypothalamic-pituitary-adrenal axis, autonomic nervous system, immune system, cardiovascular system, musculoskeletal system, antioxidant levels and metabolic processes. Data collection was completed on May 31st, 2009.

4.4 Dependent Variable: Allostatic Load

For the present investigation, we incorporated the use of one dependent variable to assess the relationship between the experience of psychosocial stress with allostatic load in our linear mixed effect regression models. This primary dependent variable was a previously developed measure of allostatic load that was created by the UCLA MIDUS allostatic load research group, using biological data from twenty-four available biomarkers, representing seven major biological system subscales, collected through the MIDUS II biomarker study (Table 4.1) [16].

To create the measure of allostatic load, the first step was to carefully review the univariate distributions of each of the twenty-four available biomarker parameters, checking for

TABLE 4.1: Twenty-Four Component Biomarkers of Seven Biological System Subscales

Biological System Subscales	Component Biomarkers
Sympathetic Nervous System	Urine Epinephrine (ug/g creatine) Urine Norepinephrine (ug/g creatine)
Parasympathetic Nervous System	SDRR (msec) RMSSD Low Frequency Spectral Power High Frequency Spectral Power
Hypothalamic Pituitary Adrenal Axis	Urine Cortisol (ug/g creatine) Blood DHEA-S (ug/dL)
Inflammation	IL-6 (pg/mL) Fibrinogen (mg/dL) CRP (mg/L) sE-Selectin (ng/M1) sICAM-1 (ng/M1)
Cardiovascular System	Resting Systolic Blood Pressure (mmHg) Resting Diastolic Blood Pressure (mmHg) Resting Heart Rate (bpm)
Metabolic-Glucose Metabolism	Glycosylated Hemoglobin (HbA1c) Fasting Glucose (mg/dL) Insulin Resistance (HOMA-IR)
Metabolic-Lipids	BMI Waist-to-Hip Ratio Triglycerides (mg/dL) HDL Cholesterol (mg/dL) LDL Cholesterol (mg/dL)

any outliers and/or biologically implausible values. The UCLA MIDUS allostatic load research group, on a case-by-case basis, made decisions on how to handle any identified outliers and/or biologically implausible values for each of the twenty-four available biomarker parameters.

Next each of the biomarker parameters was given a cut-point to delineate between being in a state of "high-risk", non-normally functioning, compared to being in a state of "low-risk", normally functioning. For most of the biomarker parameters, being within a range of values in the top quartile (25%) of plausible values indicated being in a state of "high-risk". However, for some of the biomarker parameters (blood DHEA-S and the four biomarkers representing the parasympathetic nervous system), being in a state of "high-risk" meant being within a range of values in the bottom quartile (25%) of plausible values. The specific cut-point value, for each of the biomarker parameters, was then determined by comparing the MIDUS participant samples to

the clinically used biomarker cut-points, as well as, the cut-points adopted by the National Health and Nutrition Examination Study (NHANES). Due to the MIDUS II Milwaukee sample having a slightly different biological profile (with their inclusion in the sample either raising or lowering the cut-points to be further away from both the clinical and the NHANES biological profiles), the non-Milwaukee participant sample was used to determine the values for each of the biomarker parameter quartile cut-points, as this participant sample was found to be the most comparable to the clinical and NHANES biomarker cut-point values (Table 4.2). Once the cut-point values for each of the biomarker parameters was determined, each of the participant's biomarkers, including the biomarkers for the participant's in the Milwaukee sample, were classified. If the biomarker was in a state of "high-risk" it received a score of 1, if the biomarker was in a state of "low-risk" it received a score of 0, according to whether or not the value for the given biomarker was above or below the defined "high-risk" cut-point.

To account for the participants who were taking one or more medication(s) to treat a condition affecting a measured biomarker, some of the biomarker classifications were reversed. These reversals moved the participant's biomarker scores to "high-risk", from "low-risk", regardless of the participant's observed value on that particular biomarker, for (1) resting systolic blood pressure, if the participant was taking a medication to reduce blood pressure, (2) pulse, or resting heart rate, if the participant was taking a medication to reduce heart rate, (3) fasting glucose and glycosylated hemoglobin, if the participant was taking a medication to reduce glucose levels, (4) LDL cholesterol, if the participant was taking a medication to lower cholesterol that included bile acid sequestrants, statins, cholesterol absorption inhibitors or niacin and (5) trigylcerides, if the participant was taking fibrates to lower triglyceride levels. The number of reversed biomarker scores, or reclassifications, is listed below (Table 4.3).

TABLE 4.2: Comparison of Cut-Point Values to Determine Appropriate 'High-Risk' Group

Variable	High-Risk 25% Cut-Point using Full Distribution MIDUS	High-Risk 25% Cut-Point using non-Milwaukee MIDUS	Clinical Cut-Point	NHANES Cut-Point*
Cardiovascular				
Resting SBP (mmHg)	≥ 144.00	≥143.00	≥140 (≥120)	>134.7
Resting HR (bpm)	≥ 79.00	≥77.00	> 90 (>80?)	>80
Pulse pressure (SBP-DBP)	≥ 65	≥ 65		>60.7
Metabolic-Lipids				
BMI	≥ 33.049	≥ 32.314	≥25, ≥30	>32.1
WHR	≥ 0.965	> .965	>1 (>.85,>.9)	
HDL Cholesterol (mg/dL)	≤ 42.00	≤ 41.370	<40	<41.0
LDL Cholesterol (mg/dL)	≥ 127.588	≥ 128.00	≥160 (≥130)	>140**
Triglycerides (mg/dL)	≥ 156.00	≥ 160.00	≥200 (≥150)	>163**
Metabolic- Glucose				
Fasting Glucose	≥ 105	≥ 105		>112**
HOMA-IR	≥4.357	≥ 4.05		>4.1**
Hemoglobin A1c %	≥ 6.242	≥ 6.1001	≥7 (> 6.4)	>5.8
Inflammation				
CRP(mg/L)	≥ 3.65	≥ 3.180	> 3	>4.2***
IL6 (pg/mL)	≥ 3.48	≥ 3.180		
Fibrinogen (mg/dL)	≥ 400.00	≥ 390.00		
sE-Selectin (ng/Ml)	≥ 51.897	≥ 50.576		
sICAM-1 (ng/Ml)	≥ 335.781	≥ 329.7		
Hormones				
Urine Cortisol/Creat (ug/g)	≥ 20.00	≥ 21.00		
Urine Norepi/Creat (ug/g)	≥ 32.973	≥ 33.334		
Urine Epi/Creat (ug/g)	≥ 2.467	≥ 2.540		
Blood DHEA-S (ug/dL)	≤ 50.00	≤ 51.00		
Heart Rate Variability				
SDRR (msec)	≤ 23.720	≤ 23.540		
RMSSD	≤ 12.139	≤ 11.831		
Low freq HRV	≤ 114.950	≤ 113.960		
High freq HRV	≤ 58.80	≤ 54.160		

MIDUS age range: 35 - 86 (M = 57.3, SD = 11.5); *Based on the 2007-2008 NHANES cohort of those ages>=35 who attended Mobile Exam Center (MEC) (n=4,374). Results are weighted using the MEC 2 year weights. Note: sample size varies within this sample per each measure; **Fasting subsample, weights using NHANES wtsaf2yr (sample sizes depend on measure, but based on n=1922 of the fasting subsample); ***Includes those with infection

TABLE 4.3: Number of Participants Reclassified to 'High-Risk' based on Medication Usage

Biomarker	Originally Coded as "High-Risk"	Newly Coded as "High-Risk"	Subjects Reclassified as "High-Risk"
Resting Systolic Blood Pressure	326	623	297
Resting Heart Rate	330	511	181
Fasting Glucose	314	344	30
Glycosylated Hemoglobin	376	386	10
LDL Cholesterol	307	616	309
Triglycerides	296	313	17

Lastly, a score for each of the seven major biological system subscales was computed. To create these scores, the biomarker parameter values from within each subscale were added together and the mean of those values was calculated (score range, 0-1). Each score reflected the proportion of the subscale's component biomarkers for which the subject was classified into the high-risk group. Subscale scores were created for all of the participants who had valid data for at least half of the biomarker parameters within the given subscale. These seven subscale scores were then added together to create the overall score for the measure of allostatic load (score range, 0-7).

In order for a participant to receive an overall score for allostatic load, at least six of the seven major biological system subscale scores had to be available. For most of the participants (n=1,148; 91.47%), subscale scores were available for all seven of the biological system subscales. Among those participants who were missing one or more biological system subscale score(s), the majority were missing only the parasympathetic nervous system score (n=94; 87.85%), due to missing data from instrumentation failures and/or other measurement difficulties. Therefore, the UCLA MIDUS allostatic load research group decided to impute values for those participants missing only the parasympathetic nervous system subscale score, but had scores for the other six biological system subscales. The overall allostatic load score for these individuals was then imputed (through a regression equation controlling for age, sex and race) using the participants' scores from the other six biological system subscales. The equation used to estimate allostatic load was developed based on those individuals with complete data (i.e., those whose allostatic load scores could be calculated based on the data available from all seven of the biological system subscales, and for whom the allostatic load prediction equation was carried out using all of the biological system subscale data except for the data from the

parasympathetic nervous system subscale). For participants who were missing only one of the other six biological system subscale scores, the missing system score was imputed as zero, "low-risk", (since the sample median for five of the seven system scores was zero). Those who were missing more than one biological system subscale score did not receive an overall score for allostatic load (n=13).

4.5 Independent Variables: Psychosocial Stress Domains

For the present investigation, we incorporated the use of twelve independent variables to assess the relationship between the experience of psychosocial stress with allostatic load in our linear mixed effect regression models. Our first, and primary, independent variable was a single summary index measure of overall stress. The remaining eleven, secondary, independent variables were each of the component psychosocial stress domains that, together, comprised our summary index measure of overall stress. These eleven component psychosocial stress domains included (1) psychological work stress, (2) physical work stress, (3) work-family spillover stress, (4) perceived inequality, (5) relationship stress, (6) neighborhood stress, (7) discrimination, (8) current financial stress, (9) past year problems in the immediate family, (10) stressful life experiences and (11) early life stress. Drs. David Williams and Natalie Slopen from the Harvard School of Public Health compiled and scored each domain (as described below).

Psychological Work Stress

The first component psychosocial stress domain was *psychological work stress*. This component domain was comprised of questions from five composite scales, with each composite scale created based on formerly published scientific studies that examined the issue of psychological work stress [90-95]. These composite scales included skill discretion, decision authority, demands scale, coworker non-support and supervisor non-support. The skill discretion

composite scale had three questions that included “How often do you learn new things at work?”, “How often does your work demand a high level of skill or expertise?” and “How often does your job provide you with a variety of things that interest you?”. The decision authority composite scale had six questions that included “On your job, how often do you have to initiate things – such as coming up with your own ideas, or figuring out on your own what needs to be done?”, “How often do you have a choice in deciding *how* you do your tasks at work?”, “How often do you have a choice in deciding *what* tasks you do at work?”, “How often do you have a say in decisions about your work?”, “How often do you have a say in planning your work environment – that is, how your workplace is arranged or how things are organized?” and “How often do you control the amount of time you spend on a task?”. The demands composite scale had five questions that included “How often do you have to work very intensively – that is, you are very busy trying to get things done?”, “How often do different people or groups at work demand things from you that you think are hard to combine?”, “How often do you have too many demands made on you?”, “How often do you have enough time to get everything done?” and “How often do you have a lot of interruptions?”. The co-worker non-support composite scale had two questions that included “How often do you get help and support from your co-workers?” and “How often are your co-workers willing to listen to your work-related problems?”. Lastly, the supervisor non-support composite scale had three questions that included “How often do you get the information you need from your supervisor or superiors?”, “How often do you get help and support from your immediate supervisor?” and “How often is your immediate supervisor willing to listen to your work-related problems?”. The response options for each of these questions, within these five psychological work stress composite scales, were “All of the time”, “Most of the time”, “Sometimes”, “Rarely” and “Never”. A point value between 1-5 was

assigned to each question response with 1 point for "All of the time" to 5 points for "Never". The questions from within the first three composite scales (skill discretion, decision authority and demands scale, with the exception of the demands scale question "How often do you have enough time to get everything done?"), were reverse coded so that a higher score reflected a higher stress standing on that question. If a question from within one of the composite scales was missing a score, the mean value, obtained from the completed questions within that designated scale, was imputed for that question. Composite scale scores were computed for individuals who had valid, non-imputed, responses to at least half of the questions within that particular composite scale. Composite scale scores were not computed for individuals who had valid, non-imputed, responses to fewer than half of the questions within that particular composite scale and those individuals composite scale scores were set to missing. Each of the five composite scale scores was calculated by summing together the question scores from within each of the scales. These composite scale scores were then standardized using a z-score to have a mean of zero and a standard deviation of one. Chronbach's alpha values, for each of the five composite scales, were calculated and ranged from 0.61 to 0.89 (skill discretion MIDUS II resurvey = 0.70, Milwaukee = 0.76; decision authority MIDUS II resurvey = 0.87, Milwaukee = 0.89; demands scale MIDUS II resurvey = 0.73, Milwaukee = 0.61; co-worker non-support MIDUS II resurvey = 0.67, Milwaukee = 0.68; supervisor non-support MIDUS II resurvey = 0.87, Milwaukee = 0.87). A single score for psychological work stress was then computed by taking the sum of the five standardized composite scale scores to create one numeric value per participant.

Physical Work Stress

The second component psychosocial stress domain was *physical work stress*. This component domain was comprised of questions from two composite scales: occupational

physical strain and risk of injury on the job. The occupational physical strain composite scale had nine questions that included “The following items ask about the types of physical activities that you engage in while at your job. Please indicate how often, during your work-shift, you do each of the following. If you are not currently working, but were employed over the past 10 years, please tell us about your most recent job: (1) How often does your job require a lot of physical effort? (2) How often does your job require you to lift loads weighing 50 pounds or greater? (3) How often does your job require you to lift loads weighing less than 50 pounds, but greater than 10 pounds? (4) How often does your job require you to lift loads weighing up to 10 pounds? (5) How often does your job require you to crouch, stoop or kneel? (6) How often does your job require you to stand for long periods of time? (7) How often does your job require you to use stairs or inclines? (8) How often does your job require you to walk? and (9) How often does your job require you to reach?”. The risk of injury on the job composite scale had one question that asked “To what extent, over the past ten years, have you been exposed to the risk of accidents or injuries on your job?”. The response options for each of the questions on the occupational physical strain composite scale were “All of the time”, “Most of the time”, “Some of the time”, “Little of the time” and “Never”. The response options for the question on the risk of injury on the job composite scale were “A lot”, “Some”, “A little” and “Not at all”. A point value between 1-5 was assigned to each question response, for the questions within the occupational physical strain composite scale, with 1 point for “All of the time” to 5 points for “Never”. A point value between 1-4 was assigned to the question from the risk of injury on the job composite scale with 1 point for “A lot” to 4 points for “Not at all”. All of the questions, from both composite scales, were reverse coded so that a higher score reflected a higher stress standing on that question. The occupational physical strain composite scale score was computed by calculating the mean of the

valid, non-imputed, question scores, from within the scale, then multiplying by 9 (the total number of questions within the scale) to account for any missing question values. Both composite scale scores were then standardized using a z-score to have a mean of zero and a standard deviation of one. A Chronbach's alpha value, for the occupational physical strain composite scale, was calculated with a score of 0.92 for the MIDUS II resurvey participants and 0.94 for the Milwaukee supplemental sample participants. A single score for physical work stress was then computed by taking the sum of the two standardized composite scale scores to create one numeric value per participant.

Work-Family Spillover Stress

The third component psychosocial stress domain was *work-family spillover stress*. This component domain was comprised of items from two composite scales, with both composite scales created based on the existing work-family scientific literature and previously created theoretical frameworks and scales [76, 96-102]. These composite scales included negative work-to-family spillover and negative family-to-work spillover. The negative work-to-family spillover composite scale had four items that included "Your job reduces the effort you can give to activities at home.", "Stress at work makes you irritable at home.", "Your job makes you feel too tired to do the things that need attention at home." and "Job worries or problems distract you when you are at home.". The negative family-to-work spillover composite scale had four items that included "Responsibilities at home reduce the effort you can devote to your job.", "Personal or family worries and problems distract you when you are at work.", "Activities and chores at home prevent you from getting the amount of sleep you need to do your job well." and "Stress at home makes you irritable at work.". The response options for each of these items, within both composite scales, were "All of the time", "Most of the time", "Sometimes", "Rarely" and

"Never". A point value between 1-5 was assigned to each item response with 1 point for "All of the time" to 5 points for "Never". All of the items were then reverse coded so that a higher score reflected a higher stress standing on that item If an item within one of the composite scales was missing a score, the mean value, obtained from the completed items within that designated scale, was imputed for that item. Composite scale scores were then computed for individuals who had valid, non-imputed, responses to at least half of the items within that particular composite scale. Composite scale scores were not calculated for individuals who had valid, non-imputed, responses to fewer than half of the items within that particular composite scale and those individuals composite scale scores were set to missing. Both of the composite scale scores were then computed by summing together the item scores from within each of the scales. These composite scale scores were then standardized using a z-score to have a mean of zero and a standard deviation of one. Chronbach's alpha values, for both of the composite scales, were calculated and ranged from 0.80 to 0.82 (negative work-to-family spillover MIDUS II resurvey = 0.82, Milwaukee = 0.82; negative family-to-work spillover MIDUS II resurvey = 0.80, Milwaukee = 0.80). A single score for work-family spillover stress was then computed by taking the sum of the two standardized composite scale scores to create one numeric value per participant.

Perceived Inequality

The fourth component psychosocial stress domain was *perceived inequality*. This component domain was comprised of items from three composite scales, with each composite scale created to assess the extent to which individuals have awareness of unequal distribution of life resources [72]. These composite scales included perceived inequality in the family, perceived inequality in the home and perceived inequality in the work place. The perceived inequality in

the family composite scale had six items that included “I feel good about the opportunities I have been able to provide for my children.”, “It seems to me that family life with my children has been more negative than most people’s.”, “Problems with my children have caused me shame and embarrassment at times.”, “As a family, we have not had the resources to do many fun things together with the children.”, “I believe that I have been able to do as much for my children as most other people.” and “I feel a lot of pride about what I have been able to do for my children.”. The perceived inequality in the home composite scale also had six items that included “I live in as nice a home as most people.”, “I’m proud of my home.”, “Most people live in a better neighborhood than I do.”, “I don’t like to invite people to my home because I do not live in a very nice place.”, “I feel very good about my home and neighborhood.” and “It feels hopeless to try to improve my home and neighborhood situation.”. Lastly, the perceived inequality in the work place composite scale also had six items that included “I feel cheated about the chances I have had to work at good jobs.”, “When I think about the work I do on my job, I feel a good deal of pride.”, “I feel that others respect the work I do on my job.”, “Most people have more rewarding jobs than I do.”, “When it comes to my work life, I’ve had opportunities that are as good as most people’s.” and “It makes me feel discouraged that other people have much better jobs than I do.”. The response options for each of the items, within the perceived inequality in the family composite scale, were “Not at all true”, “A little true”, “Moderately true” and “Extremely true”. The response options for each of the items, within the two remaining composite scales, perceived inequality in the home and perceived inequality in the work place, were “A lot”, “Some”, “A little” and “Not at all”. A point value between 1-4 was assigned to each item response with 1 point for “Not at all true”, for the perceived inequality in the family composite scale, or “A lot”, for the remaining two composite scales, to 4 points for “Extremely

true", for the perceived inequality in the family composite scale, or "Not at all", for the remaining two composite scales. Where needed, some of the items were reverse coded so that a higher score reflected a higher stress standing on that item. If an item within one of the composite scales was missing a score, the mean value, obtained from the completed items within that designated scale, was imputed for that item. Composite scale scores were then computed for individuals who had a valid, non-imputed, response to at least one of the items within that particular composite scale. Composite scale scores were not calculated for individuals who had a valid, non-imputed, response to zero items within that particular composite scale and those individuals composite scale scores were set to missing. Each of the three composite scale scores was then computed by calculating the mean score of the items within each scale. These composite scale scores were then standardized using a z-score to have a mean of zero and a standard deviation of one. Chronbach's alpha values, for each of the three composite scales, were calculated and ranged from 0.56 to 0.78 (perceived inequality in the family MIDUS II resurvey = 0.71, Milwaukee = 0.56; perceived inequality in the home MIDUS II resurvey = 0.78, Milwaukee = 0.65; perceived inequality in the work place MIDUS II resurvey = 0.75, Milwaukee = 0.64). A single score for perceived inequality was then computed by taking the sum of the three standardized composite scale scores to create one numeric value per participant.

Relationship Stress

The fifth component psychosocial stress domain was *relationship stress*. This component domain was comprised of questions from four composite scales, with each composite scale created based on formerly published scientific studies and scales addressing the issue of social support and relationship strain [103-106]. These composite scales included family strain, friend strain, marital risk and spouse/partner strain. The family strain composite scale had four

questions that included “Not including your spouse or partner, how often do members of your family make too many demands on you?”, “How often do they criticize you?”, “How often do they let you down when you are counting on them?” and “How often do they get on your nerves?”. The friend strain composite scale had the same four questions that included “How often do your friends make too many demands on you?”, “How often do they criticize you?”, “How often do they let you down when you are counting on them?” and “How often do they get on your nerves?”. The marital risk composite scale had five questions that included “During the past year, how often have you thought your relationship might be in trouble?”, “Realistically what do you think the chances are that you and your partner will eventually separate?” and “How much do you and your spouse or partner disagree on the following issues: (1) Money matters, such as how much to spend, save or invest? (2) Household tasks, such as what needs doing and who does it? (3) Leisure time activities, such as what to do and with whom?”. The spouse/partner strain composite scale had six questions that included “How often does your spouse or partner make too many demands on you?”, “How often does he or she argue with you?”, “How often does he or she make you feel tense”, “How often does he or she criticize you?”, “How often does he or she let you down when you are counting on him or her?” and “How often does he or she get on your nerves?”. The response options for each of the questions, within the family strain, friend strain and spouse/partner strain composite scales, were “Often”, “Sometimes”, “Rarely” and “Never”. The response options for the first question in the marital risk composite scale were “Never”, “Once”, “A few times”, “Most of the time” and “All of the time”. The response options for the second question in the marital risk composite scale were “Very Likely”, “Somewhat likely”, “Not very likely” and “Not likely at all”. The response options for the remaining three questions in the marital risk composite scale were “A lot”, “Some”, “A little” and “Not at all. A

point value between 1-4 or 1-5, depending on the number of response options for the question being asked, was assigned to each question response with 1 point for the first listed response option and 4 or 5 points, respectively, for the final listed response option. All of the questions in the family strain, friend strain and spouse/partner strain composite scales and questions two through five on the marital risk composite scale were reverse coded so that a higher score reflected a higher stress standing on that question. Composite scale scores were computed for individuals who had a valid response to at least one of the questions within that particular composite scale. Composite scale scores were not computed for individuals who had a valid response to zero questions within that particular composite scale and those individuals composite scale scores were set to missing. Each of the four composite scale scores was then computed by calculating the mean score of the questions within each scale. These composite scale scores were then standardized using a z-score to have a mean of zero and a standard deviation of one. Chronbach's alpha values, for each of the four composite scales, were calculated and ranged from 0.64 to 0.87 (family strain MIDUS II resurvey = 0.79, Milwaukee = 0.80; friend strain MIDUS II resurvey = 0.79, Milwaukee = 0.80; marital risk MIDUS II resurvey = 0.77, Milwaukee = 0.64; spouse/partner strain MIDUS II resurvey = 0.87, Milwaukee = 0.83). A single score for relationship stress was then computed by taking the sum of the four standardized composite scale scores to create one numeric value per participant.

Neighborhood Stress

The sixth component psychosocial stress domain was *neighborhood stress*. This component domain was comprised of items from one composite scale, which was obtained from an article on social well-being written by Dr. Corey Keyes in the journal of Social Psychology Quarterly [107]. This composite scale was titled personal beliefs on neighborhood and

incorporated the use of four items that included “Please indicate how much each of the following statements describes your situation: (1) “I feel safe being out alone in my neighborhood during the daytime.” (2) “I feel safe being out alone in my neighborhood at night.” (3) “I could call on a neighbor for help if I needed it.” and (4) “People in my neighborhood trust each other.”. The response options for each of these four items were “A lot”, “Some”, “A little” and “Not at all”. A point value between 1-4 assigned to each item response with 1 point for “A lot” to 4 points for “Not at all”. The composite scale score was computed for individuals who had a valid response to at least one of the items within that composite scale. Composite scale scores were not calculated for individuals who had valid responses to no items within that composite scale and those individuals composite scale scores were set to missing. The personal beliefs on neighborhood composite scale score was then computed by calculating the mean score of the four items within the scale. This composite scale score was then standardized using a z-score to have a mean of zero and a standard deviation of one. A Chronbach’s alpha value for the personal beliefs on neighborhood composite scale was calculated with a score of 0.64 for the MIDUS II resurvey participants and 0.59 for the Milwaukee supplemental sample participants. Given that there was only one composite scale score for neighborhood stress, that score from the standardized composite scale was also the single score for neighborhood stress that was assigned to each participant.

Discrimination

The seventh component psychosocial stress domain was *discrimination*. This component domain was comprised of items from three composite scales, with each composite scale developed by Dr. David Williams and colleagues for use in a study examining racial discrimination in Detroit based on results from previously published qualitative studies assessing

discrimination [108-110]. These composite scales included lifetime discrimination, daily discrimination and chronic job discrimination. The lifetime discrimination composite scale had eleven questions that included “How many times in your life have you been discriminated against in each of the following ways because of such things as your race, ethnicity, gender, age, religion, physical appearance, sexual orientation or other characteristics: (1) You were discouraged by a teacher or advisor from seeking higher education? (2) You were denied a scholarship? (3) You were not hired for a job? (4) You were not given a promotion? (5) You were fired? (6) You were prevented from renting or buying a home in the neighborhood you wanted? (7) You were prevented from remaining in a neighborhood because neighbors made life so uncomfortable? (8) You were hassled by the police? (9) You were denied a bank loan? (10) You were denied or provided inferior medical care? (11) You were denied or provided inferior service by a plumber, car mechanic, or other service provided?”. The daily discrimination composite scale had nine items that included “You are treated with less courtesy than other people.”, “You are treated with less respect than other people.”, “You receive poorer service than other people at restaurants or stores.”, “People act as if they think you are not smart.”, “People act as if they are afraid of you.”, “People act as if they think you are dishonest.”, “People act as if they think you are not as good as they are.”, “You are called names or insulted.” and “You are threatened or harassed.”. The chronic job discrimination composite scale had six questions that included “How often do you think you are unfairly given the jobs that no one else wanted to do?”, “How often are you watched more closely than other workers?”, “How often does your supervisor or boss use ethnic, racial or sexual slurs or jokes?”, “How often do your co-workers use ethnic, racial or sexual slurs or jokes?”, “How often do you feel that you are ignored or not taken seriously by your boss?” and “How often has a co-worker with less experience and

qualifications than you gotten promoted before you?". The response options for each of the questions in the lifetime discrimination composite scale were a count, indicating the number of times the event occurred. The response options for each of the items in the daily discrimination composite scale were "Often", "Sometimes" "Rarely" and "Never". The response options for each of the questions in the chronic job discrimination composite scale were "Once a week or more", "A few times a month", "A few times a year", "Less than once a year" and "Never". For the lifetime discrimination composite scale, a raw count was reported for each of the questions in the scale. For the remaining two composite scales, daily discrimination and chronic job discrimination, a point value between 1-4 or 1-5, depending on the number of response options for the item/question being asked, was assigned to each item response with 1 point for the first listed response option and 4 or 5 points, respectively, for the final listed response option. All of the items in the daily discrimination and chronic job discrimination composite scales were reverse coded so that a higher score reflected a higher stress standing on that item. If an item was missing a score, in either the daily discrimination or chronic job discrimination composite scales, the mean value, obtained from the completed items within that designated scale, was imputed for that item. Composite scale scores were computed for individuals who had a valid, non-imputed, response to at least one item, for the lifetime discrimination composite scale; five items, for the daily discrimination composite scale; or three items, for the chronic job discrimination composite scale. Composite scale scores were not computed for individuals who had valid, non-imputed, responses to fewer than the required number of responses for that particular composite scale and those individuals composite scale scores were set to missing. Each of the three composite scale scores was calculated by summing together the item scores from within each of the scales. These composite scale scores were then standardized using a z-score to have a mean of zero and a

standard deviation of one. Chronbach's alpha values, for the daily discrimination and chronic job discrimination composite scales, were calculated and ranged from 0.76 to 0.92 (daily discrimination MIDUS II resurvey = 0.92, Milwaukee = 0.88; chronic job discrimination MIDUS II resurvey = 0.76, Milwaukee = 0.83). A single score for discrimination was then computed by taking the sum of the three standardized composite scale scores to create one numeric value per participant.

Current Financial Stress

The eighth component psychosocial stress domain was *current financial stress*. This component domain was comprised of questions from one composite scale. This composite scale was titled financial stress and incorporated two questions that included "In general, would you say you (and your family living with you) have more money than you need, just enough money for your needs, or not enough money to meet your needs?" and "How difficult is it for you (and your family) to pay your monthly bills?". The response options for the first question were "More money than you need", "Just enough money for your needs" and "Not enough money to meet your needs". The response options for the second question were "Very difficult", "Somewhat difficult", "Not very difficult" and "Not at all difficult". A point value between 1-3 or 1-4, depending on the number of response options to the question being asked, was assigned to each question response with 1 point for the first listed response option and 3 or 4 points, respectively, for the final listed response option The second question was reverse coded so that a higher score reflected a higher stress standing on that question. The composite scale score was computed for individuals who had a valid response to at least one of the two questions within the scale. The composite scale score was not computed for individuals who did not have a valid response to at least one of the two questions within the scale and those individuals composite scale score was

set to missing. The financial stress composite scale score was calculated by summing together the two question scores from within the scale. This composite scale score was then standardized using a z-score to have a mean of zero and a standard deviation of one. A Chronbach's alpha value for the financial stress composite scale was calculated with a score of 0.79 for the MIDUS II resurvey participants and 0.66 for the Milwaukee supplemental sample participants. Given that there was only one composite scale score for current financial stress, that score from the standardized composite scale was also the single score for current financial stress that was assigned to each participant.

Past Year Problems in the Immediate Family

The ninth component psychosocial stress domain was *past year problems in the immediate family*. This component domain was comprised of questions from three composite scales, with each composite scale created based on formerly published scientific studies and scales examining stress as it relates to the experience of major life events, traumatic events and overall chronic stress [111-115]. These composite scales included past year problems for spouse/partner, past year problems for parents and past year problems for children. The past year problems for spouse/partner composite scale had ten questions that included "Please indicate whether the following problems have happened to your spouse/partner in the past 12 months: (1) Chronic disease or disability? (2) Frequent minor illness? (3) Emotional problems (such as sadness, anxiety)? (4) Alcohol or substance problems? (5) Financial problems, such as low income or heavy debts? (6) Problems at school or at work (such as failing grades, poor job performance)? (7) Difficulty finding or keeping a job? (8) Marital or partner relationship problems? (9) Legal problems (such as involved in lawsuits, police charges, traffic violations)? and/or (10) Difficulty getting along with people?". The past year problems for parent's

composite scale asked the same ten questions, but instead of asking about the spouse/partner, asked about the parents. The past year problems for children composite scale, again, asked the same ten questions, but instead of asking about the spouse/partner, asked about the children. The response options for each of these questions, within the three past year problems in the immediate family composite scales, were "no" and "yes". A point value between 0-1 was assigned to each question response with 0 points for "no" to 1 point for "yes". Composite scale scores were computed for individuals who had a valid response to at least one of the questions within that particular composite scale. Composite scale scores were not computed for individuals who had no valid responses to the questions within that particular composite scale and those individuals composite scale scores were set to missing. Each of the three composite scale scores was calculated by summing together the question scores from within each of the scales. These composite scale scores were then standardized using a z-score to have a mean of zero and a standard deviation of one. A single score for past year problems in the immediate family was then computed by taking the sum of the three standardized composite scale scores to create one numeric value per participant.

Stressful Life Experiences

The tenth component psychosocial stress domain was *stressful life experiences*. This component domain was comprised of questions from two composite scales, with each composite scale created based on formerly published scientific studies and scales examining stress as it relates to the experience of major life events, traumatic events and overall chronic stress [111-115]. These composite scales included past events within five years and lifetime stress events (6+ years ago or no age identified). The past events within five years composite scale had twenty questions. These questions asked about events that occurred within the last five years and

included “Flunked out of school?”, “Fired from a job?”, “Did not have a job for a long time when you wanted to be working?”, “A parent died?”, “Parents divorced?”, “Spouse/partner engaged in (marital) infidelity?”, “Significant difficulty with in-laws?”, “Brother or sister died?”, “Child died?”, “Child experienced life threatening accident or injury?”, “Lost your home to a fire, flood, natural disaster, etc.?”, “Physically assaulted or attacked?”, “Sexually assaulted (ex. forced sexual intercourse or other unwanted sexual contact)?”, “Serious legal difficulties/prison?”, “Detention in jail or comparable institution?”, “Declared bankruptcy?”, “Suffered a financial or property loss unrelated to work?”, “Went on welfare?”, “Entered the armed forces?” and “Experienced combat?”. The lifetime stress events composite scale asked the same twenty questions, along with three additional questions that included “Homeless in the past 15 years?”, “No telephone in home or apartment in the past 15 years?” and “Marriage ended in divorce or widowhood?”, but asked about events that occurred more than 6 years ago or had no identifiable age. The response options for each of these questions, within both of the stressful life experiences composite scales, were “no” and “yes”. A point value between 0-1 was assigned to each question response with 0 points for “no” to 1 point for “yes”. Composite scale scores were computed for individuals who had a valid response to at least one of the questions within that particular composite scale. Composite scale scores were not calculated for individuals who had no valid responses to the questions within that particular composite scale and those individuals composite scale scores were set to missing. Both of the composite scale scores were calculated by summing together the question scores from within each of the scales. These composite scale scores were then standardized using a z-score to have a mean of zero and a standard deviation of one. A single score for stressful life experiences was then computed by taking the sum of the two standardized composite scale scores to create one numeric value per participant.

Early Life Stress

The eleventh component psychosocial stress domain was *early life stress*. This component domain was comprised of questions from three composite scales, with each composite scale created based on formerly published scientific studies and scales examining stress as it relates to the experience of major life events, traumatic events and overall chronic stress [111-115]. These composite scales included count of child-adolescent specific stress experiences, relationship with parents and verbal or physical assault by parents (conflict tactics inventory) [116]. The count of child-adolescent specific stress experiences composite scale had nine questions that included "The following questions are about experiences that you may have had as a child or teenager. Did you have any of the following experiences as a child or teenager: (1) Repeated a year of school? (2) Sent away from home because you did something wrong? (3) Father or mother did not have a job when they wanted to be working? (4) One or both of your parents drank so often that it caused problems? (5) One or both of your parents used drugs so often that it regularly caused problems? (6) Dropped out of school? (7) Expelled or suspended from school? (8) Ever received welfare or ADC for a period of 6 months or more during childhood or adolescence?" and (9) "Moved to a totally new neighborhood or town 2 or more times during childhood?". The relationship with parent's composite scale had two questions that included "How would you rate your relationship with your mother during the years you were growing up?" and "How would you rate your relationship with your father during the years you were growing up?". The verbal or physical assault by parents composite scale had six questions that included "During your childhood, how often did your mother, or the woman you raised you, (1) insulted you or swore at you, sulked or refused to talk to you, stomped out of the room, did or said something to spite you, threatened to hit you or smashed or kicked something in anger? (2)

pushed, grabbed or shoved you, slapped you, threw something at you? (3) kicked, bit, or hit you with a fist, hit or tried to hit you with something, beat you up, choked you, burned or scalded you?" and "During your childhood, how often did your father, or the man who raised you, (4) insulted you or swore at you, sulked or refused to talk to you, stomped out of the room, did or said something to spite you, threatened to hit you or smashed or kicked something in anger? (5) pushed, grabbed or shoved you, slapped you, threw something at you? (6) kicked, bit, or hit you with a fist, hit or tried to hit you with something, beat you up, choked you, burned or scalded you?". The response options for each of the questions within the count of child-adolescent specific stress experiences composite scale were "no" and "yes". The response options for each of the questions within the relationship with parent's composite scale were "Excellent", "Very good", "Good", "Fair" and "Poor". The response options for each of the questions within the verbal or physical assault by parents composite scale were "Never", "Rarely", "Sometimes" and "Often". A point value between 0-1 was assigned to each question response within the count of child-adolescent-specific stress experiences with 0 points for "No" to 1 point for "Yes". A point value between 1-5 was assigned to each question response within the relationship with parent's composite scale with 1 point for "Excellent" to 5 points for "Poor". A point value between 1-4 was assigned to each question response within the verbal or physical assault by parent's composite scale with 1 point for "Never" to 4 points for "Often". Composite scale scores were computed for individuals who had a valid response to at least one of the questions within that particular composite scale. Composite scale scores were not computed for individuals who had no valid responses to the questions within that particular composite scale and those individuals composite scale scores were set to missing. Each of the three composite scale scores was calculated by summing together the question scores from within each of the scales. These

composite scale scores were then standardized using a z-score to have a mean of zero and a standard deviation of one. Chronbach's alpha values, for the relationship with parents and verbal or physical assault by parent's composite scales, were calculated and ranged from 0.24 to 0.84 (relationship with parents MIDUS II resurvey = 0.56, Milwaukee = 0.24; verbal or physical assault by parents MIDUS II resurvey = 0.82, Milwaukee = 0.84). A single score for early life stress was then computed by taking the sum of the three standardized composite scale scores to create one numeric value per participant.

Missing Data Imputation

For each of the composite scales, within our eleven component psychosocial stress domains, there were a number of individuals without an overall composite scale score due to missing data (range: 5.35%, missing the relationship with parents composite scale score, from the early life stress psychosocial stress domain, to 35.46%, missing the count of child-adolescent specific stress experiences composite scale score, also from the early life stress psychosocial stress domain, percentages based on the overall MIDUS II sample (n=5,555; MIDUS II resurvey n = 4,963, Milwaukee n = 592)). Therefore, imputation measures for the items missing values were created using IVEware software, to avoid having to exclude participants due to their missing data. This imputation method allowed for the participant's composite scale scores to be calculated, followed by the calculation of the component psychosocial stress domain scores and, ultimately, the summary index measure of overall stress value. (See Appendix B for details on imputation method).

Summary Index Measure of Overall Stress

Following the item imputation, calculating the composite scale scores, standardizing the composite scale scores using a z-score and then computing the overall eleven component

psychosocial stress domain values, each of the eleven component psychosocial stress domain values were then standardized using a z-score to have a mean of zero and a standard deviation of one. A single score for the *summary index measure of overall stress* was then computed by taking the sum of the eleven standardized component psychosocial stress domains to create one numeric value per participant. This summary index measure of overall stress score was then, also, standardized using a z-score to have a mean of zero and a standard deviation of one.

Imputation Flags

For some participants, there were certain component psychosocial stress domains that were not applicable due to the life circumstances of the individual. These included (1) participants who 'were not married or living with a partner in a marriage-like relationship' would not experience "relationship stress" or "past year problems in the immediate family" related to marital stress, (2) participants who 'were not currently working' would not experience " "psychological or physical work stress", "work-family spillover stress", "perceived inequality" or "discrimination" related to current employment and (3) participants who 'do not have any children' would not experience "perceived inequality" or "past year problems in the immediate family" related to having children. Thus, sociodemographic information was utilized to determine whether or not each participant was eligible to experience each of the component psychosocial stress domains; if the respondent was ineligible, the participant was given the lowest possible score on that particular component psychosocial stress domain. These three imputation flags were then used as control variables in our linear mixed effect regression models.

4.6 Analysis Covariates: Sociodemographic Characteristics

For the present investigation, we incorporated the use of six sociodemographic characteristics. These characteristics included age, gender, race/ethnicity, income, educational

attainment and marital status. Each was utilized in our linear mixed effect regression models as covariates and also in testing as moderators with respect to the relationship between our psychosocial stress measures with allostatic load. Prior to beginning the current study analyses, these selected sociodemographic characteristics were created and used in scientifically published work by other MIDUS investigators [16, 29, 117].

Age and Gender

The first of these characteristics, *age,* was calculated by subtracting the individual's date of birth from the date the participant completed the MIDUS II resurvey telephone interview or, for the Milwaukee supplemental sample, the MIDUS II in-person interview. The participant's *gender* was also determined during the MIDUS II resurvey telephone interview or, for the Milwaukee supplemental sample, the MIDUS II in-person interview, where the respondent was asked to state whether they consider themselves to be "male" or "female". There were no missing values for either characteristic.

Race/Ethnicity

The participant's *race/ethnicity* was determined by combining his/her responses to questions regarding both his/her racial and his/her ethnic identity. The participant's racial identity was classified according to information collected from both the MIDUS I main study SAQ and the MIDUS II resurvey telephone interview or, for the Milwaukee supplemental sample, the MIDUS II in-person interview. During the MIDUS I main study SAQ the participant was asked, "What race do you consider yourself to be?" The response options for this categorical variable included "White", "Black and/or African American", "Native American or Aleutian Islander/Eskimo", "Asian or Pacific Islander", "Other", "Multiracial" and "Refused". The participant was allowed to choose only one of those response options. During the MIDUS II

resurvey telephone interview, or in-person interview for Milwaukee participants, the participant was asked, “What are your main racial origins – that is, what race or races are your parents, grandparents and other ancestors?” The response options for this categorical variable included “White”, “Black and/or African American”, “Native American or Alaska Native/Aleutian Islander/Eskimo”, “Asian”, “Native Hawaiian or Pacific Islander”, “Other (specify)”, “Don’t Know” and “Refused”. The participant was allowed to choose multiple response options. If the participant chose multiple response options, the participant was asked “Which do you feel best describes your racial background? White, Black or African American, American Indian or Alaska Native, Asian, or Native Hawaiian or Pacific Islander?” The response options for this categorical variable included “White”, “Black and/or African American”, “Native American or Alaska Native/Aleutian Islander/Eskimo”, “Asian”, “Native Hawaiian or Pacific Islander”, “Other (specify)” and “Don’t Know”. The participant was allowed to choose only one of those response options. In some cases, multiple response options were chosen for this question and the final racial identity of that participant was classified as multiracial. The final racial classifications for the remaining participants were then determined by comparing the given responses to the above racial identity questions from the MIDUS I main study SAQ to the MIDUS II resurvey telephone interview or the in-person interview for the Milwaukee supplemental sample. If both of the responses were the same, then that response was determined to be the racial identity of the participant. If one of the responses was missing, then the racial identity of that participant was determined based on the non-missing response. If the responses were different, then the racial identity of that participant was determined to be multiracial. For the participants who did not know, refused or otherwise did not state their racial identity in any of the above racial identity questions, their value for race/ethnicity was set to missing.

The participant's ethnic identity was classified according to his/her response to one question asked within both the MIDUS II resurvey telephone interview or, for the Milwaukee supplemental sample, the MIDUS II in-person interview. The question asked, "Are you of Spanish, Hispanic or Latino decent – that is, Mexican, Mexican American, Chicano, Puerto Rican, Cuban or some other Spanish origin?" The response options for this categorical variable included "Not Spanish/Hispanic", "Mexican", "Mexican American", "Chicano", "Puerto Rican", "Cuban", "Other Spanish (specify)", "Don't Know" and "Refused". If the participant indicated that he/she was "Not Spanish/Hispanic" as his/her response to the ethnic identity question, he/she was classified as "Not Spanish/Hispanic". If the participant indicated that he/she was "Mexican, Mexican American, Chicano, Puerto Rican, Cuban or Other Spanish (specify)" then he/she was classified as "Spanish/Hispanic". For the participants who did not know, refused or otherwise did not state their ethnic identity, their final value for race/ethnicity was set to missing.

The participant's race/ethnicity was then categorized into to one of four groups, "non-Hispanic White", "non-Hispanic Black", "non-Hispanic other" or "Hispanic". These categories were chosen due to the majority of our sample (93.48% of those who answered the race/ethnicity questions), being either "non-Hispanic White" or "non-Hispanic Black" and also an interest in creating a distinct category for "Hispanics".

Income

The participant's household *income* was classified as a family-adjusted poverty to income ratio calculated using the information collected from his/her responses to questions from the MIDUS II resurvey telephone interview and SAQ or, for the Milwaukee supplemental sample, the MIDUS II in-person interview and SAQ. These questions asked the participant's household size, the number of children the participant had under the age of 18, his/her age, the year his/her

data were collected and his/her household income. The reported household income was capped at a maximum total household income of $300,000. A poverty threshold value was assigned to each participant based on his/her household size and income, with income values standardized to the U.S. Census Bureau's poverty thresholds for the year in which the participant reported his/her income (i.e., year the MIDUS II resurvey SAQ data were collected). The family-adjusted poverty to income ratio was then calculated using the total household income divided by the assigned poverty threshold value. If a participant was missing any of the information needed to calculate the family-adjusted poverty to income ratio, his/her final value for income was set to missing.

Educational Attainment

The participant's highest level of *educational attainment* was classified according to the participant's responses to a question asked on both the MIDUS I main study telephone interview and the MIDUS II resurvey telephone interview or, for the Milwaukee supplemental sample, the MIDUS II in-person interview. This question asked "What is the highest grade of school or year of college you completed?" The response options for this categorical variable included "No school or some grade school (1-6)", "Eighth grade or junior high school (7-8)", "Some high school (9-12 no diploma or GED)", "GED", "Graduated from high school", "1-2 years of college, no degree yet", "3 or more years of college, no degree yet", "Graduated from a 2 year college or vocational school, or associates degree", "Graduated from a 4 or 5 year college or bachelors degree", "Some graduate school", "Masters Degree", "PhD, EDD, MD, DDS, LLB, LLD, JD or other professional degree" and "Don't know". The participant's highest level of education completed was then determined by comparing his/her given responses to the question asked at MIDUS I to the question asked at MIDUS II. If the responses were the same, then that response was determined to be the highest level of education attained by the participant. If one of

the responses was missing, then the highest level of education attained by the participant was determined based on the non-missing response. If the MIDUS I response indicated a higher level of education completed than the MIDUS II response, then that individual was flagged and later his/her value was set to missing. If the MIDUS I response indicated a lower level of education completed than the MIDUS II response, then the MIDUS II response was determined to be the highest level of education attained by the participant. For the participants who did not know, refused or otherwise did not state their highest level of education attained, their value for educational attainment was set to missing. For the present investigation, the educational attainment categories were collapsed into three categories that included "HS Diploma/GED or less", "Some College/AA" and "BA/BS or more" based on the desire to create a more succinct number of educational categories with similar cell sizes across the groups (27.75%, 29.44% and 42.81%, respectively), as well as, one of the original educational categories having zero participants ('No school or some grade school (1-6)') and many of the remaining educational categories having very small sample sizes starting with 'Eighth grade or junior high school (7-8)' having n=4 followed by n=23, n=6, n=186, n=155, n=37, n=96, n=226, n=46, n=148, n=60 for the subsequent educational categories.

Marital Status

The participant's current *marital status*, at the time of the MIDUS II biomarker study, was assessed according to the participant's responses to questions asked within the MIDUS II resurvey telephone or, for the Milwaukee supplemental sample, the MIDUS II in-person interview, as well as, the MIDUS II biomarker study medical history questionnaire. During the MIDUS II resurvey telephone interview, or in-person interview, the participant was asked, "Are you married, separated, divorced, widowed or never married?" The response options for this

categorical variable included “Married”, “Separated”, “Divorced”, “Widowed”, “Never Married” and “Don’t Know”. If the participant responded with “Never married”, “Don’t Know” or refused to answer, the participant was then asked the question “Are you currently living with someone in a steady, marriage-like relationship? (yes or no)”. At the time of the MIDUS II biomarker study the participant was re-asked the questions, within the medical history questionnaire, regarding his/her martial status. The first question asked “Now I’d like to ask you about experiences you’ve had since you completed the MIDUS II telephone interview. Since that time, have you gotten married, separated, divorced, become widowed, or begun living with someone in a steady, marriage-like relationship? (yes or no)”. If the participant responded with a “yes”, the participant was asked, “What is your current marital status? – Married, separated, divorced, widowed, never married, living with someone in a steady-marriage-like relationship?” The response options for this categorical variable included “Married”, “Separated”, “Divorced”, “Widowed”, “Never Married”, “Living with someone” and “Not Appropriate”. Classification of the participant’s marital status was then determined by comparing his/her given responses to these marital status questions given during the MIDUS II resurvey telephone interview, or in-person interview, to the questions given during the MIDUS II biomarker study. If the responses were the same, then that response was determined to be the marital status of the participant. If one of the responses was missing, then the marital status of the participant was determined based on the non-missing response. If the participant responded to the question in the MIDUS II biomarker study by indicating that his/her marital status had changed, that change was considered to be the marital status of the participant. If the participant indicated that his/her marital status had not changed since the MIDUS II resurvey telephone interview, or in-person interview, then the martial status of the participant was classified according to the response given during the MIDUS II resurvey

telephone interview, or in-person interview. For the participants who did not know, refused or otherwise did not state their marital status, their value for marital status was set to missing. The original marital status variable included six categories: “Married”, “Separated”, “Divorced”, “Widowed”, “Never Married” and “Living with someone”. However, upon further evaluation, those categories were further collapsed into four groups that included “Married or Living with someone”, “Separated or Divorced”, “Widowed” and “Never Married” based on the desire to create a more succinct number of marital status categories and both the categories for “Living with someone” and “Separated” each having less than 3% of the overall sample (1.86% and 2.45%, respectively).

4.7 Analysis Covariates: Health Behavior Characteristics

For the present investigation, we incorporated the use of three health behavior characteristics. These characteristics measured the participant’s average number of minutes of physical activity per week, his/her current smoking status and his/her current alcohol use. Each characteristic was utilized in our linear mixed effect regression models as covariates and also in testing as moderators with respect to the relationship between our summary index measure of overall stress with allostatic load. Prior to beginning the current study analyses, these selected health behavior characteristics were created and used in scientifically published work by other MIDUS investigators [16, 29, 117].

Physical Activity

The first of these characteristics, *physical activity*, was evaluated according to the participant’s responses to questions asked within the MIDUS II biomarker study’s medical history questionnaire. An initial question asked the participant if he/she engaged in any amount

of physical activity. This question asked “We define 3 general types of regular exercise or activity. It can be:

VIGOROUS - Which causes your heart to beat so rapidly you can feel it in your chest and you perform it long enough to work up a good sweat and breathe heavily (e.g., competitive sports, running, vigorous swimming, high intensity aerobics, digging in the garden, or lifting heavy objects).

MODERATE - which causes your heart rate to increase slightly and you typically work up a sweat (e.g., leisurely sports like light tennis, slow or light swimming, low intensity aerobics or golfing without a power cart, brisk walking, mowing the lawn with a walking lawnmower).

LIGHT - which requires little physical effort (e.g., light housekeeping like dusting or laundry, bowling, archery, easy walking, golfing with a power cart or fishing).

Keeping these definitions in mind, do you engage in regular exercise, or activity, of any type for 20 minutes or more at least 3 times/week? (yes/no)”. If the participant responded with a “no”, he/she was classified as not engaging in any amount of physical activity. If the participant responded with a “yes”, he/she was asked to describe, one at a time, each type of regular exercise/activity that he/she engaged. This included stating the number of times per week he/she engaged in this type of exercise/activity, the average number of minutes/sessions that he/she engaged in this exercise/activity and, based on the above scale from the initial question, the level of intensity that he/she engaged in this type of exercise/activity. To calculate the average number of minutes the participant engaged in physical activity within each of the three intensity categories (vigorous, moderate and/or light physical activity), the participant’s response to the number of times he/she engaged in a particular activity was multiplied by the number of minutes that he/she engaged in that particular activity and then that amount was added to the selected

intensity category that the participant indicated for that activity. At each intensity level, the number of minutes the participant engaged in any type of exercise/activity were summed together and a mean number of minutes were calculated. A weighted average for the number of minutes of physical activity the participant engaged in per week was calculated according to the equation:

((minutes of light physical activity) + (2*minutes of moderate physical activity) + (3*minutes of vigorous physical activity))/3

to create a single physical activity value for each participant. If a participant had no information within any of the three physical activity categories, his/her final value for physical activity was set to missing.

Smoking Status

The participant's current *smoking status* was assessed according to the participant's responses to two questions asked within the MIDUS II biomarker study's medical history questionnaire. The first question asked, "Have you ever smoked cigarettes regularly – that is, at least a few cigarettes ever day? (yes/no)". The second question asked, "Do you currently smoke cigarettes regularly? (yes/no)". The smoking status classification for each participant was then determined by combining his/her responses to both questions categorizing the participant as either a "never smoker" "past smoker" or "current smoker". If the participant responded to the first question regarding "ever smoking" with a "no", he/she was classified as a "never" smoker. If the participant responded to the first question "ever smoking" with a "yes", he/she was directed to answer the second question. If the participant was directed to answer the second question and responded with a "no" to "currently smokes", he/she was classified as a "past" smoker. If the participant was directed to answer the second question and responded with a "yes"

to “currently smokes”, he/she was classified as a “current” smoker. For the participants who did not know, refused or otherwise did not state their smoking habits, their final value for smoking status was set to missing.

Alcohol Use

The participant’s current *alcohol use* was assessed according to the NIAAA guidelines on drinking alcohol and the participant’s responses to ten questions (see Appendix A for alcohol use questions) asked within the MIDUS II biomarker study’s medical history questionnaire. These ten questions evaluated the participant’s alcohol consumption over the last month and allowed for the classification of the participant as either an “abstainer”, a “light to moderate drinker” or a “heavy drinker” based on the NIAAA guidelines for drinking alcohol. These NIAAA guidelines for drinking alcohol included 5 criteria for classification including (1) if the participant’s number of alcoholic drinks per week was reported to be between 1-14, then he/she was considered to be a “light/moderate” drinker of alcohol, (2-5) if in the past month, the participant had 5 or more alcoholic drinks consumed at one occasion, if the number of alcoholic drinks per week was greater than 15, if the participant was male and reported drinking alcohol more than 4 alcoholic drinks per day or if the participant was female and reported drinking alcohol more than 3 alcoholic drinks per day, then he/she was considered to be a “heavy” drinker of alcohol. If the participant reported consuming 0 alcoholic drinks per week or 0 alcoholic drinks per day, based on the response options to the question being asked, then he/she was considered to be an “abstainer” of alcohol. For the participants who did not know, refused or otherwise did not state their alcoholic drinking habits, their final value for alcohol use was set to missing.

4.8 Analysis Covariates: Psychosocial Resource Characteristics

For the present investigation, we incorporated the use of three types of psychosocial resource scales. These psychosocial resource scale types included psychological well-being, coping and personality traits. For each type of psychosocial resource, there were multiple measures. Psychological well-being had six scales, coping had nine scales and personality traits had seven scales. Each of these scales was examined as a potential moderator of the relationship between our summary index of stress with allostatic load in our linear mixed effect regression models. All of these measures reflect well-established scales, selected from the existing literature for inclusion in the MIDUS study ([71, 118-123]).

Psychological Well-Being Scales

The first of our three psychosocial resource scale types was *psychological well-being*. There were six scales measuring aspects of psychological well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance. Each of these six scales had seven items. These six scales were created based on the information reported in the Journal of Personality and Social Psychology in the article titled 'Happiness is everything, or is it? Explorations on Meaning of Psychological Well-Being" by author Dr. Carol D. Ryff and her subsequent article titled "The Structure of Psychological Well-Being Revisited" [71, 118].

Autonomy was assessed by the following items: "I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.", "My decisions are not usually influenced by what everyone else is doing.", "I tend to be influenced by the people with strong opinions.", "I have confidence in my opinions, even if they are contrary to the general consensus.", "It's difficult for me to voice my own opinions on controversial matters.", "I tend to

worry about what other people think of me." and "I judge myself by what I think is important, not by the values of what others think is important.".

Environmental mastery was assessed by the items: "In general, I feel I am in charge of the situation in which I live.", "The demands of everyday life often get me down.", "I do not fit very well with the people and the community around me.", "I am quite good at managing the many responsibilities of my daily life.", "I often feel overwhelmed by my responsibilities.", "I have difficulty arranging my life in a way that is satisfying to me." and "I have been able to build a living environment and a lifestyle for myself that is much to my liking.".

Personal growth was measured by the items: "I am not interested in activities that will expand my horizon.", "I think it is important to have new experiences that challenge how you think about yourself and the world.", "When I think about it, I haven't really improved much as a person over the years.", "I have the sense that I have developed a lot as a person over time.", "For me, life has been a continuous process of learning, changing and growth.", "I gave up trying to make big improvements or changes in my life a long time ago." and "I do not enjoy being in new situations that require me to change my old familiar ways of doing things.".

Positive relations with others was assessed by the following items: "Most people see me as loving and affectionate.", "Maintaining close relationships has been difficult and frustrating for me.", "I often feel lonely because I have few close friends with whom I share my concerns.", "I enjoy personal and mutual conversations with family members and friends.", "People would describe me as a giving person, willing to share my time with others.", "I have not experienced many warm and trusting relationships with others." and "I know that I can trust my friends, and they know they can trust me.".

Purpose in life was measured by the items: "I live life one day at a time and don't really think about the future.", "I have a sense of direction and purpose in life.", "I don't have a good sense of what it is I'm trying to accomplish in life.", "My daily activities often seem trivial and unimportant to me.", "I enjoy making plans for the future and working to make them a reality.", "Some people wander aimlessly through life, but I am not one of them." and "I sometimes feel as I've done all there is to do in life.".

Self-acceptance was assessed by the following items: "When I look at the story of my life, I am pleased with how things have turned out.", "In general, I feel confident and positive about myself.", "I feel like many of the people I know have gotten more out of life than I have.", "I like most parts of my personality.", "In many ways I feel disappointed about my achievements in life.", "My attitude about myself is probably not as positive as most people feel about themselves." and "When I compare myself to friends and acquaintances, it makes me feel good about who I am.".

For all of the items assessing aspects of psychological well-being, response options were "Strongly agree", "Somewhat agree", "A little agree", "Neither agree or disagree", "A little disagree", "Somewhat disagree" and "Strongly disagree". A point value between 1-7 was assigned to each item response with 1 point for "Strongly agree" to 7 points for "Strongly disagree". For the items reflecting a positive outlook, each was reverse coded so that a higher score reflected a higher standing on that item. If an item within a scale was missing a score, a mean value, obtained from the completed items within the designated scale, was imputed for that item. Scale scores were calculated for individuals who had valid, non-imputed, responses to at least four of the seven items within that particular scale. Scale scores were not calculated for individuals who had valid, non-imputed, responses to fewer than four of the seven items within

that scale and those individuals scale scores were set to missing. The six scale scores were then computed by summing together each of the item scores from within each scale. Chronbach's alpha values, for each of the six scales, were calculated and ranged from 0.53 to 0.84 (autonomy MIDUS II resurvey = 0.71, Milwaukee = 0.53; environmental mastery MIDUS II resurvey = 0.78, Milwaukee = 0.69; personal growth MIDUS II resurvey = 0.75, Milwaukee = 0.60; positive relations with others MIDUS II resurvey = 0.78, Milwaukee = 0.72; purpose in life MIDUS II resurvey = 0.70, Milwaukee = 0.67; self-acceptance MIDUS II resurvey = 0.84, Milwaukee = 0.76).

Coping Scales

The second of our three psychosocial resource scale types was *coping*. There were nine coping scales. These scales included positive reinterpretation and growth, active coping, planning, focus on and venting of emotions, denial, behavioral disengagement, using food to cope, problem focused coping and emotion focused coping. The first six, of these nine scales, had four items each. These nine scales were created based on the information found in the Journal of Personality and Social Psychology in the article titled 'Assessing Coping Strategies: A Theoretically Based Approach" by author Dr. Charles S. Carver and colleagues [119].

Positive reinterpretation and growth included the items "I try to grow as a person as a result of the experience.", "I try to see it in a different light, to make it seem more positive.", "I look for something good in what is happening." and "I learn something from the experience.".

Active coping included the items "I concentrate my efforts on doing something about it.", "I take additional action to try to get rid of the problem.", "I take direct action to get around the problem." and "I do what has to be done, one step at a time.".

Planning included the items “I make a plan of action.”, “I try to come up with a strategy about what to do.”, “I think about how I might best handle the problem.” and “I think hard about what steps to take.”.

Focus on and venting of emotions included the items “I get upset and let my emotions out.”, “I get upset, and am really aware of it.”, “I let my feelings out.” and “I feel a lot of emotional distress and find myself expressing those feelings a lot.”.

Denial, included the items “I say to myself ‘this isn’t real’.”, “I refuse to believe that it has happened.”, “I pretend that it hasn’t really happened.” and “I act as though it hasn’t even happened.”.

Behavioral disengagement included the items “I admit to myself that I can’t deal with it, and quit trying.”, “I give up trying to reach my goal.”, “I give up the attempt to get what I want.” and “I reduce the amount of effort I’m putting into solving the problem.”.

The seventh scale, using food to cope, had two items that included “I eat more than I usually do.” and “I eat more of my favorite foods to make myself feel better.” The response options for each of these items, for the first seven of the nine coping scales, were “A lot”, “A medium amount”, “Only a little” and “Not at all”. A point value between 1-4 was assigned to each item response with 1 point for “A lot” to 4 points for “Not at all”. All of the items were then reverse coded so that a higher score reflected a higher standing on that item. If an item within a scale was missing a score, a mean value, obtained from the completed items within the designated scale, was imputed for that item. Scale scores were calculated for individuals who had valid, non-imputed, responses to at least half of the items within that particular scale. Scale scores were not calculated for individuals who had valid, non-imputed, responses to fewer than half of the items within that scale and those individuals scale scores were set to missing. The

seven scale scores were then computed by summing together each of the item scores from within each scale.

For the eighth and ninth scales, problem focused coping and emotion focused coping, respectively, both were measured by combining select scale scores from the previously described coping scales. Problem focused coping combined the scale scores from the positive reinterpretation and growth, active coping and planning scales (scales 1-3) and emotion focused coping combined the scale scores from the focus on and venting of emotions, denial and behavioral disengagement scales (scales 4-6).

Chronbach's alpha values, for each of the nine scales, were calculated and ranged from 0.62 to 0.90 (positive reinterpretation and growth MIDUS II resurvey = 0.80, Milwaukee = 0.67; active coping MIDUS II resurvey = 0.75, Milwaukee = 0.62; planning MIDUS II resurvey = 0.83, Milwaukee = 0.76; focus on and venting of emotions MIDUS II resurvey = 0.81, Milwaukee = 0.73; denial MIDUS II resurvey = 0.76, Milwaukee = 0.73; behavioral disengagement MIDUS II resurvey = 0.73, Milwaukee = 0.73; using food to cope MIDUS II resurvey = 0.90, Milwaukee = 0.73; problem focused coping MIDUS II resurvey = 0.90, Milwaukee = 0.87; emotion focused coping MIDUS II resurvey = 0.83, Milwaukee = 0.85).

Personality Trait Scales

The third of our three psychosocial resource scale types was *personality traits*. There were seven personality scales. These scales included neuroticism, extraversion, openness to experience, two versions of conscientiousness, agreeableness and agency. For each of these seven scales, respondents were asked how much of a given adjective they would say described themselves. Across all 7 scales, there were 31 adjectives, each of which was chosen based on information collected from previously published trait lists and inventories [120-123].

For neuroticism the participant was asked about four adjectives that included “Moody”, “Worrying”, “Nervous” and “Calm”. For extraversion the participant was asked about five adjectives that included “Outgoing”, “Friendly”, “Lively”, “Active” and “Talkative”. For openness to experience the participant was asked about seven adjectives that included “Creative”, “Imaginative”, “Intelligent”, “Curious”, “Broad-minded”, “Sophisticated” and “Adventurous”. For the first version of conscientiousness the participant was asked about four adjectives that included “Organized”, “Responsible”, “Hardworking” and “Careless”. For the second version of conscientiousness the participant was asked about the same four adjectives as the first version of conscientiousness with the additional inclusion of “Thorough”. For agreeableness the participant was asked about five adjectives that included “Helpful”, “Warm”, “Caring”, “Softhearted” and “Sympathetic”. Lastly, for agency, the participant was asked about five adjectives that included “Self-confident”, “Forceful”, “Assertive”, “Outspoken” and “Dominant”.

The response options for self-identifying with each adjective, were “A lot”, “Some”, “A little” and “Not at all”. A point value between 1-4 was assigned to each adjective response with 1 point for “A lot” to 4 points for “Not at all”. For the adjectives “Calm” and “Careless”, each was reverse coded so that a higher score reflected a higher level of the personality trait dimension that included those adjectives. Scale scores were calculated for individuals who had valid responses to at least half of the adjectives within that particular scale. Scale scores were not calculated for individuals who had valid responses to fewer than half of the adjectives within that scale and those individuals scale scores were set to missing. Each of the seven personality trait scale scores was then computed by calculating the mean score of the adjectives within each scale. Chronbach’s alpha values, for each of the seven scales, were also calculated and ranged from

0.58 to 0.81 (neuroticism MIDUS II resurvey = 0.74, Milwaukee = 0.69; extraversion MIDUS II resurvey = 0.76, Milwaukee = 0.73; openness to experience MIDUS II resurvey = 0.77, Milwaukee = 0.80; conscientiousness v1 MIDUS II resurvey = 0.58, Milwaukee = 0.58; conscientiousness v2 MIDUS II resurvey = 0.68, Milwaukee = 0.61; agreeableness MIDUS II resurvey = 0.80, Milwaukee = 0.71; agency MIDUS II resurvey = 0.81, Milwaukee = 0.71).

4.9 Statistical Methods

Pre-Regression Analyses

All statistical analyses were conducted using the SAS software statistical package version 9.3. Before conducting any of our linear mixed effect regression models, with mixed effect analyses used due to the clustering in our sample by twin pairs, multiple steps were taken to create new variables and to examine the previously created variables that would be included in our analyses. The first step was to dummy code each of the seven categorical variables (data collection site, gender, race/ethnicity, educational attainment, marital status, smoking status and alcohol use) so that they could be easily entered into our subsequent regression analyses. Second, the univariate distributions of the thirty-eight continuous variables (the measure of allostatic load, the twelve measures of psychosocial stress, the twenty-two psychosocial resource measures and the variables for age, income and physical activity) were examined for any signs of skewness or kurtosis. Any of the continuous variables that were skewed (≥ 0.5 or ≤ -0.5) or had a positive or negative kurtosis (≥ 2 or ≤ -2) were top or bottom coded at the 95% : 5% value, respectively (this included nine of the measures of psychosocial stress, twelve of the psychosocial resource measures and the variables for both income and physical activity), to achieve a more normal distribution of the variable. For one variable, psychological work stress, the measure was both top and bottom coded at the 95% and 5% value, due to the presence of right skewed data and a

few potentially low value outliers. Third, the three continuous sociodemographic and health behavior variables (age, income and physical activity) were converted into categorical quartiles to check for possible non-linearities in their relationship between psychosocial stress with allostatic load within our linear mixed effect regression analyses. Fourth, the regression analyses, along with the individual variables, were checked for any remaining outliers or influential points, post-variable transformation, as well as, any violations of model assumptions (normality, linearity, homogeneity of variance and independence) or presence of multicollinearity. There were no concerns and no changes were made. Finally, the descriptive statistics and frequencies were calculated for all of the variables included in our linear mixed effect regression models among the entire biomarker sample (n=1,255), our analytic sample (n=1,182) and those who were excluded (n=73), which were individuals who were missing data for at least one of the variables included within the regression analyses as listed below in Table 4.4

Table 4.4: Distribution of Missing Information for Excluded Participants

Excluded (n=73)	**Allostatic Load**	**Race/ Ethnicity**	**Income**	**Educational Attainment**	**Physical Activity**	**Alcohol Use**
Allostatic Load $(13)_1$	12			1		
Race/Ethnicity $(7)_2$		5	1		1	
Income $(30)_2$			28	1		
Educational Attainment $(13)_2$				11		
Physical Activity $(5)_1$					4	
Alcohol Use (9)						9

Aims 1 and 2

We then began conducting our linear mixed effect regression analyses. The linear mixed effect regression method was used to account for the clustering in our analytic sample by family membership, due to the presence of twin pairs. The first three analyses examined the association between the summary index measure of overall stress with allostatic load adjusting for (1) data collection site and the three imputation flags for the psychosocial stress measures (2) adding

additional control for sociodemographic characteristics and (3) adding additional control for health behavior characteristics. The next thirty-three analyses repeated the first three analyses, but examined each of the eleven component psychosocial stress domains, each replacing the summary index measure of overall stress in the linear mixed effect regression model. The models that included all of the possible control variables (data collection site, combinations of the three imputation flags for the psychosocial stress domains, and the sociodemographic and health behavior characteristics) were the base models for all of the subsequent analyses.

Aim 3

The next set of analyses examined the possible moderating role of the sociodemographic and health behavior characteristics with respect to the relationship between the summary index measure of overall stress with allostatic load. The first twelve analyses examined the individual moderating role of each of the sociodemographic and health behavior characteristics (age, gender, race/ethnicity, income, educational attainment, marital status, physical activity, smoking status and alcohol use). The next analysis examined the moderating role of only the sociodemographic characteristics (age, sex, race/ethnicity, income, educational attainment and marital status). This was followed by an analysis examining the moderating role of only the health behavior characteristics (physical activity, smoking status and alcohol use). We then ran an analysis examining the moderating role of all of the sociodemographic and health behavior characteristics within one model. Lastly, we ran an analysis of only the moderators that were found to be statistically significant in our linear mixed effect regression models (age, race/ethnicity and marital status).

We were also interested in which of the eleven component psychosocial stress domains were contributing to the statistical significance of the age, race/ethnicity and marital status

moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. Therefore, we conducted thirty-three analyses examining the moderating role of age, race/ethnicity and marital status, individually, across each of the eleven component psychosocial stress domains. We also carried out eleven analyses examining the moderating role of age, race/ethnicity and marital status, simultaneously, across the eleven component psychosocial stress domains.

Aim 4

Lastly, we were interested in the role psychosocial resources may play as moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. The first twenty-two analyses examined the individual moderating role of each of the psychosocial resource characteristics (the six psychological well-being scales, the nine coping scales and the seven personality trait scales). The next three analyses examined each of the individual "types" of psychosocial resources (psychological well-being, coping and personality trait). The next analysis examined all of the psychosocial resource types in one model. We were also interested in examining select three-way interactions with our psychosocial resources, so we stratified our sample by age quartiles, gender groups and educational attainment categories and re-evaluated the individual moderating role of each of the twenty-two psychosocial resources across each of the sociodemographic characteristic strata.

CHAPTER V. Results

5.1 Descriptives

As seen in Table 5.1, the sociodemographic and health behavior characteristic distributions between the full biomarker sample (n=1,255) and our analytic sample (n=1,182) were nearly identical. Among the individuals included in our analytic sample, the average age was 54.39 years (SD=11.71 years) compared to the full biomarker sample average age of 54.52 years (SD=11.72 years). The majority of participants in both of the samples were female (analytic=56.35%, biomarker=56.81%), non-Hispanic white (analytic=75.63%, biomarker=76.04%), had a college bachelor's degree or greater (analytic=42.81%, biomarker=42.43%), were married or living with someone in a marriage-like relationship (analytic=64.64%, biomarker=64.70%), never smoked (analytic=52.12%, biomarker=52.43%) and were light to moderate consumers of alcohol (analytic=51.18%, biomarker=51.04%).

As seen in Table 5.2, the numeric range of the allostatic load scores along with the values for each of the psychosocial stress measures and the psychosocial resource characteristics were the same when comparing the full biomarker sample to our analytic sample. The means and standard deviations for each of these variables were also nearly identical, when comparing the analytic to the biomarker sample. The mean allostatic load score for the participants in our analytic sample was 1.954 (SD=1.139), compared to 1.967 (SD=1.149) for the individuals in the full biomarker sample, with a range of scores seen from 0 to 5.567 for both samples. The mean summary index measure of overall stress value for the participants in our analytic sample was 0.1000 (SD=0.9735), compared to 0.0961 (SD=0.9816) for the individuals in the full biomarker sample, with a range of values seen from -2.138 to 2.262 for both samples. For the eleven summary index component measures of psychosocial stress, both samples had a range of mean

scores with the lowest for neighborhood stress (analytic=-0.1786, SD=0.6904; biomarker=-0.1749, SD=0.6973) to the highest for psychological work stress (analytic=0.3337, SD=0.7921; biomarker= 0.3204, SD=0.7941). For the psychological well-being scales, the range of mean scores for both samples went from the lowest for autonomy (analytic=37.30, SD=6.658; biomarker=37.34, SD=6.695) to the highest for positive relations with others (analytic=40.62, SD=6.797; biomarker=40.64, SD=6.787). For the coping scales, the range of mean scores for both samples went from the lowest for denial (analytic=5.985, SD=1.975; biomarker=5.986, SD=1.972) to the highest for active coping (analytic=12.58, SD=2.152; biomarker=12.59, SD=2.164). Lastly, for the personality traits scales, the range of mean scores for both samples went from the lowest for neuroticism (analytic=2.045, SD=0.6448; biomarker=2.049, SD=0.6444) to the highest for the shorter version of conscientiousness (analytic=3.452, SD=0.4354; biomarker=3.453, SD=0.4360).

5.2 Aims 1 and 2

Analysis of Main Effects: Summary Index Measure of Overall Stress

As seen in Table 5.3, the first three analyses examined the association between a summary index measure of overall stress with allostatic load, adjusting for three sets of covariates. The first model adjusted for the data collection site, as well as, the three imputation flags that indicated whether or not an individual had an imputed score of zero for a select subscale that was included in the summary index measure. These imputation flags included (1) married or living with a partner in a marriage-like relationship for “relationship stress” and “past year problems in the immediate family” (2) currently working for “psychological or physical work stress”, “work-family spillover stress”, “perceived inequality” and “discrimination” and (3) had children for “perceived inequality” and “past year problems in the immediate family”. The

following model added further adjustment for sociodemographic characteristics (age, gender, race/ethnicity, income, educational attainment and marital status). The final model added adjustment for health behavior characteristics (physical activity, smoking status and alcohol use). The model adjusting for sociodemographic characteristics found the summary index measure of overall stress to be a statistically significant predictor of allostatic load (β=0.1402, CI: [0.0659, 0.2146], p=0.0003) and, with additional adjustment of the health behavior characteristics, the summary index measure of overall stress continued to be a statistically significant predictor of allostatic load (β=0.1302, CI: [0.0551, 0.2054], p=0.0008).

Analysis of Main Effects: Component Psychosocial Stress Domains

As seen in Table 5.4, the following thirty-three analyses repeated these same three models, but substituted the summary index measure of overall stress with each of the component psychosocial stress measures. In the base model, adjusting for data collection site and the imputation flags (as indicated above), it was found that psychological work stress (β=-0.1437, CI: [-0.2533, -0.0340], p=0.0106), work-family spillover stress (β=-0.1294, CI: [-0.2083, -0.0505], p=0.0015), current financial stress (β=0.0662, CI: [0.0054, 0.1269], p=0.0329) and stressful life experiences (β=0.1218, CI: [0.0514, 0.1923], p=0.0008) were the strongest predictors of allostatic load.

After additional adjustment for sociodemographic characteristics, it was found that current financial stress (β=0.1318, CI: [0.0677, 0.1959], p<0.0001) and stressful life experiences (β=0.1147, CI: [0.0405, 0.1888], p=0.0027) continued to be strong predictors of allostatic load, with current financial stress becoming more statistically significant (CI: [0.0054, 0.1269], p=0.0329 to CI: [0.0677, 0.1959], p<0.0001) and stressful life experiences becoming a slightly less statistically significant predictor of allostatic load (CI: [0.0514, 0.1923], p=0.0008 to CI:

[0.0405, 0.1888], p=0.0027). It was also found that perceived inequality (β=0.1011, CI: [0.0217, 0.1804], p=0.0130) and discrimination (β=0.1306, CI: [0.0636, 0.1976], p=0.0002) were now strong predictors of allostatic load and psychological work stress (β=-0.0190, CI: [-0.1284, 0.0905], p=0.7324) and work-family spillover stress (β=-0.0189, CI: [-0.0984, 0.0606], p=0.6384) were no longer statistically significant predictors of allostatic load.

After further adjustment for the health behavior characteristics, the same four component psychosocial stress measures found to be statistically significant after adjustment for the sociodemographic characteristics, remained statistically significant predictors of allostatic load, which included perceived inequality (β=0.0838, CI: [0.0043, 0.1633], p=0.0391), discrimination (β=0.1317, CI: [0.0654, 0.1980], p=0.0001), current financial stress (β=0.1116, CI: [0.0481, 0.1751], p=0.0007), and stressful life experiences (β=0.0908, CI: [0.0148, 0.1668], p=0.0197). However stressful life experiences became a slightly less statistically significant predictor of allostatic load after controlling for the health behavior characteristics (CI: [0.0405, 0.1888], p=0.0027 to CI: [0.0148, 0.1668], p=0.0197).

5.3 Aim 3

Individual Moderation Models: Summary Index Measure of Overall Stress

Using the fully adjusted model (i.e., adjustment for both the sociodemographic and health behavior characteristics), twelve analyses were conducted that examined the possible moderating role of each of the sociodemographic and health behavior characteristics, individually, with respect to the relationship between the summary index measure of overall stress with allostatic load. It was found that being between the ages of 55 and 62 (reference=ages 34-45, β=-0.2227, CI: [-0.4235, 0.0219], p=0.0301; Table 5.5), being Hispanic (reference=non-Hispanic White, β=-0.3440, CI: [-0.6537, -0.0343], p=0.0298; Table 5.5) and being widowed (reference=married or

living with someone in a marriage-like relationship, β=0.2021, CI: [0.0041, 0.4000], p=0.0455; Table 5.6) were all statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. However, none of the health behavior characteristics were found to be statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load (Table 5.7).

Simultaneous Moderation Models: Summary Index Measure of Overall Stress

A parallel set of analyses were conducted to examine, collectively, (a) the sociodemographic characteristics and (b) the health behavior characteristics as potential moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. In the first model, as seen in Table 5.8, all of the sociodemographic characteristics were examined together and it was found that being between the ages of 55 and 62 (reference=ages 34-45, β=-0.2600, CI: [-0.4623, -0.0577], p=0.0123) and being Hispanic (reference=non-Hispanic White, β=-0.3443, CI: [-0.6662, -0.0224], p=0.0363) continued to be statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. However, being widowed (reference=married or living with someone in a marriage-like relationship, β=0.1710, CI: [-0.0561, 0.3981], p=0.1383) was no longer a statistically significant moderator with respect to the relationship between the summary index measure of overall stress with allostatic load. As seen in Table 5.9, when all of the health behavior characteristics were examined together, again, no statistically significant moderators were found with respect to the relationship between the summary index measure of overall stress with allostatic load.

Table 5.10 presents the results from the analysis examining all of the sociodemographic and health behavior characteristics together. Being between the ages of 55 and 62 (reference=ages 34-45, β=-0.2524, CI: [-0.4524, -0.0524], p=0.0139) continued to be a statistically significant moderator with respect to the relationship between the summary index measure of overall stress with allostatic load. However, being Hispanic (reference=non-Hispanic White, β=-0.3103, CI: [-0.6283, 0.0076], p=0.0556) and being widowed (reference=married or living with someone in a marriage-like relationship, β=0.1722, CI: [-0.0575, 0.4020], p=0.1400) were no longer statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. In a final model (see Table 5.11), the three characteristics that were found to be statistically significant moderators in the previous models (age, race/ethnicity and marital status) were examined together and it was found that being between the ages of 55 and 62 (reference=ages 34-45, β=-0.2544, CI: [-0.4570, -0.0519], p=0.0143) and being Hispanic (reference=non-Hispanic White, β=-0.3408, CI: [-0.6739, -0.0077], p=0.0451) continued to be statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. However, being widowed (reference=married or living with someone in a marriage-like relationship, β=0.1757, CI: [-0.0439, 0.3953], p=0.1156) was no longer a statistically significant moderator with respect to the relationship between the summary index measure of overall stress with allostatic load.

Select Moderation Models: Component Psychosocial Stress Domains

Continuing to use the fully adjusted model (i.e., adjustment for both the sociodemographic and health behavior characteristics), forty-four analyses were conducted that examined the possible moderating role of age, race/ethnicity and marital status, both individually

and the three characteristics simultaneously, with respect to the relationship between each of the eleven summary index component psychosocial stress domains with allostatic load.

For psychological work stress, as seen in Tables 5.12 and 5.13, when examined both individually and the three characteristics simultaneously, it was found that being between the ages of 55 and 62 (reference=ages 34-45, β=-0.2262, CI: [-0.4376, -0.0148], p=0.0362 and β=-0.2553, CI: [-0.4725, -0.0382], p=0.0217, respectively) and being Hispanic (reference=non-Hispanic White, β=-0.5051, CI: [-0.8859, -0.1243], p=0.0098 and β=-0.5036, CI: [-0.8985, -0.1087], p=0.0129, respectively) were both statistically significant moderators with respect to the relationship between psychological work stress with allostatic load. Additionally, being non-Hispanic black (reference=non-Hispanic White, β=0.2358, CI: [0.0350, 0.4366], p=0.0218) was found to be a statistically significant moderator, when the three characteristics were examined simultaneously, with respect to the relationship between psychological work stress with allostatic load.

For physical work stress, as seen in Tables 5.14 and 5.15, no characteristics were found to be statistically significant moderators, when examined individually, with respect to the relationship between physical work stress with allostatic load. However, it was found that being between the ages of 55 and 62 (reference=ages 34-45, β=-0.2089, CI: [-0.4044, -0.0134], p=0.0365) was a statistically significant moderator, when the three characteristics were examined simultaneously, with respect to the relationship between physical work stress with allostatic load.

For work-family spillover stress (Tables 5.16 and 5.17) and perceived inequality (Tables 5.18 and 5.19), no characteristics were found to be statistically significant moderators, when examined individually or the three characteristics simultaneously, with respect to the relationship between work-family spillover stress or perceived inequality with allostatic load.

For relationship stress, as seen in Tables 5.20 and 5.21, when examined both individually and the three characteristics simultaneously, it was found that being widowed (reference=married or living with someone in a marriage-like relationship, β=0.3457, CI: [0.1244, 0.5670], p=0.0025 and β=0.3577, CI: [0.1096, 0.6057], p=0.0051, respectively) was a statistically significant moderator with respect to the association between relationship stress with allostatic load. Additionally, being non-Hispanic other (reference=non-Hispanic White, β =-0.3086, CI: [-0.5899, -0.0274], p=0.0318 and β =-0.3094, CI: [-0.5864, -0.0325], p=0.0289) was found to be a statistically significant moderator, when examined both individually and the three characteristics simultaneously, with respect to the association between relationship stress with allostatic load.

For neighborhood stress, as seen in Tables 5.22 and 5.23, when examined both individually and the three characteristics simultaneously, it was found that being between the ages of 55 and 62 (reference=ages 34-45, β=-0.2610, CI: [-0.4939, -0.0281], p=0.0284 and β=-0.3303, CI: [-0.5721, -0.0885], p=0.0079, respectively) was a statistically significant moderator with respect to the relationship between neighborhood stress with allostatic load. It was also found that being widowed (reference=married or living with someone in a marriage-like relationship, β=0.3881, CI: [0.0870, 0.6892], p=0.0120) was a statistically significant moderator, when the three characteristics were examined simultaneously, with respect to the relationship between neighborhood stress with allostatic load. Additionally, when examined both individually and the three characteristics simultaneously, being between the ages 63 and 84 (reference=ages 34-45, β=-0.2955, CI: [-0.5435, -0.0475], p=0.0200 and β=-0.4319, CI: [-0.7033, -0.1606], p=0.0021) was found to be a statistically significant moderator with respect to the relationship between neighborhood stress with allostatic load.

For discrimination, as seen in Tables 5.24 and 5.25, when examined both individually and the three characteristics simultaneously, it was found that being between the ages of 55 and 62 (reference=ages 34-45, β=-0.2131, CI: [-0.3943, -0.0320], p=0.0216 and β=-0.2255, CI: [-0.4099, -0.0410], p=0.0171, respectively) was a statistically significant moderator with respect to the relationship between discrimination with allostatic load.

For current financial stress (Tables 5.26 and 5.27), no characteristics were found to be statistically significant moderators, when examined individually or the three characteristics simultaneously, with respect to the relationship between current financial stress with allostatic load.

For past year problems in the immediate family, as seen in Tables 5.28 and 5.29, when examined both individually and the three characteristics simultaneously, it was found that being widowed (reference=married or living with someone in a marriage-like relationship, β=0.2895, CI: [0.0992, 0.4797], p=0.0032 and β=0.2125, CI: [0.0012, 0.4238] p=0.0488, respectively) was a statistically significant moderator with respect to the relationship between past year problems in the immediate family with allostatic load. It was also found that being non-Hispanic black (reference=non-Hispanic White, β=0.2183, CI: [0.0516, 0.3851], p=0.0108) was a statistically significant moderator, when the three characteristics were examined simultaneously, with respect to the relationship between past year problems in the immediate family with allostatic load.

For stressful life experiences, as seen in Tables 5.30 and 5.31, when examined both individually and the three characteristics simultaneously, it was found that being widowed (reference=married or living with someone in a marriage-like relationship, β=0.3483, CI: [0.0988, 0.5978], p=0.0066 and β=0.3772, CI: [0.1090, 0.6453], p=0.0063, respectively) was a

statistically significant moderator with respect to the relationship between stressful life experiences with allostatic load.

For early life stress (Tables 5.32 and 5.33), no characteristics were found to be statistically significant moderators, when examined individually or the three characteristics simultaneously, with respect to the relationship between early life stress with allostatic load.

5.4 Aim 4

Individual Psychosocial Resource Moderation Models

The next twenty-two analyses, using the fully adjusted model (i.e., adjustment for both the sociodemographic and health behavior characteristics), examined the possible moderating role, individually, of twenty-two psychosocial resource characteristics that represented psychological well-being (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance), coping (positive reinterpretation and growth, active coping, planning, focus on and venting of emotions, denial, behavioral disengagement, using food to cope, problem focused coping and emotion focused coping) and personality traits (neuroticism, extraversion, openness to experience, conscientiousness (two versions), agreeableness and agency) with respect to the relationship between the summary index measure of overall stress with allostatic load. As seen in Tables 5.34A and 5.34B (for the psychological well-being scales), 5.35A, 5.35B and 5.35C (for the coping scales) and 5.36A and 5.36B (for the personality trait scales), none of the psychosocial resource characteristics were found to be statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load.

Simultaneous Psychosocial Resource Moderation Models

The following four analyses, also using the fully adjusted model, examined the possible moderating role of, collectively, for model (1) the six psychological well-being scales, for model (2) the nine coping scales, for model (3) the seven personality trait scales and for model (4) all of the twenty-two psychosocial resource scales with respect to the relationship between the summary index measure of overall stress with allostatic load. As seen in Tables 5.37 (models 1-3) and Table 5.38 (model 4), none of the psychosocial resource characteristics were found to be statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load.

Age Differences in Psychosocial Resource Moderation Models (Stratified Analyses)

Eighty-eight analyses were conducted, using the fully adjusted model, as seen in Tables 5.39A and 5.39B (for the psychological well-being scales), 5.40A, 5.40B and 5.40C (for the coping scales) and 5.41A and 5.41B (for the personality trait scales), to examine the possible moderating role of each of the twenty-two psychosocial resource characteristics, individually, by four age quartiles (ages 34-45, ages 46-54, ages 55-62 and ages 63-84), with respect to the relationship between the summary index measure of overall stress with allostatic load. Among the individuals ages 46 to 54, active coping (β=0.0734, CI: [0.0170, 0.1297], p=0.0137; Table 40A) and behavioral disengagement (β=-0.0636, CI: [-0.1256, -0.0016], p=0.0450; Table 40B) were found to be statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. There were no other psychosocial resource characteristics found to be statistically significant moderators, within any of the other three age quartiles, with respect to the relationship between the summary index measure of overall stress with allostatic load.

Gender Differences in Psychosocial Resource Moderation Models (Stratified Analyses)

Forty-four analyses were conducted, using the fully adjusted model, as seen Tables 5.42A and 5.42B (for the psychological well-being scales), 5.43A, 5.43B and 5.43C (for the coping scales) and 5.44A and 5.44B (for the personality trait scales), to examine the moderating role of each of the twenty-two psychosocial resource characteristics, individually, by gender (males vs. females), with respect to the relationship between the summary index measure of overall stress with allostatic load. Among females, using food to cope (β=-0.0441, CI: [-0.0876, -0.0006], p=0.0470; Table 5.43C) was found to be a statistically significant moderator with respect to the relationship between the summary index measure of overall stress with allostatic load. Among males, using food to cope (β=0.0706, CI: [0.0138, 0.1274], p=0.0177; Table 5.43C) and focus on and venting of emotions (β=0.0410, CI: [0.0011, 0.0809], p=0.0447; Table 5.43B) were found to be statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. There were no other psychosocial resource characteristics found to be statistically significant moderators, among males or females, with respect to the relationship between the summary index measure of overall stress with allostatic load.

Educational Differences in Psychosocial Resource Moderation Models (Stratified Analyses)

Sixty-six analyses were conducted, using the fully adjusted model, as seen in Tables 5.45A and 5.45B (for the psychological well-being scales), 5.46A, 5.46B and 5.46C (for the coping scales) and 5.47A and 5.47B (for the personality trait scales), to examine the moderating role of each of the twenty-two psychosocial resource characteristics, individually, by three educational attainment strata (less than a high school diploma/GED, some college/AA and a bachelor's degree or greater), with respect to the relationship between the summary index measure of overall stress with allostatic load. Among the individuals who obtained a bachelor's

degree or greater, environmental mastery (β=-0.0210, CI: [-0.0355, -0.0064], p=0.0060; Table 5.45A), positive relations with others (β=-0.0209, CI: [-0.0372, -0.0045], p=0.0141; Table 5.45B), self-acceptance (β=-0.0164, CI: [-0.0310, -0.0017], p=0.0294; Table 5.45B), focus on and venting of emotions (β=0.0351, CI: [0.0008, 0.0695], p=0.0454; Table 5.46B), the shorter version of conscientiousness (β=-0.2209, CI: [-0.4380, -0.0037], p=0.0464; Table 5.47A) and agreeableness (β=-0.2065, CI: [-0.4111, -0.0020], p=0.0479; Table 5.47B) were each found to be statistically significant moderators with respect to the relationship between the summary index measure of overall stress with allostatic load. There were no other psychosocial resource characteristics found to be statistically significant moderators, within any of the other two educational attainment strata, with respect to the relationship between the summary index measure of overall stress with allostatic load.

CHAPTER VI: Discussion

6.1 Aims 1 and 2

As hypothesized, the summary index measure of overall stress was positively and statistically significantly associated with allostatic load, after controlling for sociodemographic characteristics. It also remained positively and statistically significantly associated with allostatic load after additional control for health behavior characteristics. To our knowledge, there have been no scientifically published studies that have examined the association between a summary index measure of overall stress, as an aggregate measure of specific dimensions of psychosocial stress, with allostatic load among individuals in a national sample. However, there have been numerous studies, dating back to before the 1970's, correlating the experience of psychosocial stress with various negative health events and with overall poorer health [18, 20, 21, 24, 57, 124, 125]. It may be that one proposed mechanism leading to these identified associations between experiencing psychosocial stress with adverse health events is through having high allostatic load. Allostatic load in its theoretical form is defined as the product of chronic stressful events. Nonetheless, most empirical studies of allostatic load have measured psychosocial stress only indirectly, such as through stress related to ones socioeconomic standing [13, 126-128]. One study, published in 2007, did attempt to directly examine the link between the experience of psychological stress, assessed via the Perceived Stress Scale (i.e., the experience of life as unpredictable, uncontrollable and overloaded), with allostatic load and found that there was a statistically significant association between this experience of psychological stress and selected primary mediators of allostatic load [129]. Dr. Bruce McEwen, one of the pioneers of allostatic load research, also found there to be a biological connection between psychosocial stress and allostatic load when he identified the hypothalamic CRF expression as being deficient in

subordinate rats that are most severely affected by the psychosocial stress experience [130, 131], with this reduced hypothalamic CRF linked to a failure to show a hormonal stress response. Also, it has been shown that prolonged and extreme exposure to psychosocial stress can lead to, over months to years, permanent loss of nerve cells in the hippocampus [132], enhancement of abdominal fat in primate animals [133] and poorer immune system function such as an increase in vulnerability to infections including the common cold [134]. Therefore, this preliminary finding of a positive and statistically significant association between the experience of psychosocial stress with allostatic load may warrant further investigation. Specifically, examining longitudinally how changes in psychosocial stress may be related to changes in allostatic load, as a proposed mechanism leading individuals to experience negative health outcomes.

Upon examination of the eleven summary index component psychosocial stress domains and their individual relationships with allostatic load, we found that each of the component psychosocial stress domains, with one exception, demonstrated a positive association with allostatic load, as was hypothesized. The one exception was work-family spillover stress, which showed a negative, though non-statistically significant, association with allostatic load (β=-0.0238, CI: [-0.1023, 0.0547], p=0.5489). Four of the summary index component psychosocial stress domains (perceived inequality, discrimination, current financial stress and stressful life experiences) were found to be statistically significantly associated with allostatic load, independent of control for sociodemographic and health behavior characteristics. These four dimensions of psychosocial stress: perceived inequality, discrimination, current financial stress and stressful life experiences may be the most strongly associated with allostatic load, due to these types of stressors being some of the most uncontrollable and unpredictable [135], therefore,

being some of the least manageable and/or modifiable. For example, perceived discrimination has been shown to be positively associated with allostatic load, among African American adolescents, who may experience greater racial discrimination compared to their non-Hispanic white counterparts [136]. This experience of racial discrimination is greatly out of the control of the individual, making it very difficult to manage. It is then this lack of ability to manage or control this type of stress experience that could potentially lead to higher levels of allostatic load compared to individuals who experience more controllable stressors, especially when these stressors are chronic. However, having high levels of emotional support has also been shown to lessen this association between perceived discrimination with allostatic load [136]. Thus, even though experiencing harder to modify forms of stress have been shown in our analyses to be the most strongly associated with allostatic load, there may be methods to lessen these associations through the use of advantageous psychosocial resources.

6.2 Aim 3

In addition to examining these main effects, associating the experience of psychosocial stress with allostatic load, we also assessed the question of possible moderation of those relationships by major sociodemographic and health behavior characteristics. We found three statistically significant moderators including age (specifically, a weaker effect among those between the ages of 55-62), race/ethnicity (specifically, an apparent reversal of the expected positive association among Hispanics) and marital status (specifically, a stronger positive association among those who were widowed).

Age

With respect to age, individuals in the lower two age groups (between the ages of 34-45 and ages 46-54, respectively) showed an increase in their allostatic load scores as their overall

levels of psychosocial stress increased. However, individuals in the higher two age groups (between the ages of 55-62 and 63-84, respectively) had a leveling off of their allostatic load scores as their overall levels of psychosocial stress increased. This is consistent with what has been shown in the published literature identifying that among older ages, such as above the age of 60 years, allostatic load scores begin to level off and then remain remarkably constant [6, 62]. This has been hypothesized as occurring due to the mortality selectivity of the population by physiological status. However, among younger age groups, allostatic load scores can be more variable so that something like the experience of psychosocial stress may play a stronger role in affecting ones allostatic load scores.

In-order to identify which of the summary index component psychosocial stress domains may be driving the potential moderating effect of age, with respect to the relationship between the summary index measure of overall stress with allostatic load, we examined the potential moderating role of age with respect to the relationships between each of the eleven summary index component psychosocial stress domains with allostatic load, individually and then simultaneously with the other two previously identified potential moderators, race/ethnicity and marital status. Age, assessed individually and then in combination with the race/ethnicity and marital status moderators, was found to moderate the effects of three of the summary index component psychosocial stress domains (psychological work stress, neighborhood stress and discrimination). Again, as was seen with the summary index measure of overall stress, those individuals who were between the ages of 55-62 exhibited weaker effects compared to those individuals who were in the lowest age group, between the ages of 34-45. Among those individuals who experienced neighborhood stress, weaker effects were also seen among those individuals in the highest age group, between the ages of 63-84, compared to those individuals in

the lowest age group, between the ages of 34-45. When the three potential moderators were assessed simultaneously, age was also identified as a statistically significant moderator with respect to the association between physical work stress with allostatic load. This same pattern, individuals between the ages of 55-62 demonstrating a weaker effect compared to those individuals in the lowest age group, between the ages of 34-45, was seen with physical work stress.

These four summary index component psychosocial stress domains: psychological work stress, physical work stress, neighborhood stress and discrimination were likely some of the largest contributors to the moderating role of age, with respect to the relationship between the summary index measure of overall stress with allostatic load, due to the individuals who are in the younger age groups still being employed/working so that their allostatic load scores may be more strongly affected by work-related stressors, as well as, discrimination and neighborhood stress, falling under the umbrella of some of the more uncontrollable and unpredictable types of stressors, having a greater effect in the younger age groups whose allostatic load scores have been shown to be more variable, thus, having the potential to be more strongly influenced by a potentially greater problematic psychosocial stressor. More generally, the pattern of age moderation, that is seen for the summary index measure of overall stress and its component psychosocial stress measures, is consistent with the growing body of literature suggesting that there are a wide range of risk factors that begin to exhibit weaker associations with allostatic load (and its sub-components) among those who are older – likely due to the effects inherent in biological aging (i.e., the effects of time) continuing to accumulate even among those who lack other risk factors. Thus, even among those who are considered “advantaged” begin to experience

higher and higher levels of allostatic load and the differences between these individuals and those who have other risk factors are reduced [6, 62].

Race/Ethnicity

Race/ethnicity was also shown to be a statistically significant moderator with respect to the relationship between the summary index measure of overall stress with allostatic load, although this effect was reduced to marginal non-significance once physical activity and smoking status were added to the model that controlled for the sociodemographic characteristics (β=-0.3131, CI: [-0.6315, 0.0053], p=0.0538). Among individuals who identified as either non-Hispanic White or non-Hispanic black, as their overall levels of psychosocial stress increased, so did their allostatic load scores, which was as expected. However, among those individuals who identified as non-Hispanic other, they experienced a leveling off of their allostatic load scores as their overall levels of psychosocial stress increased. For individuals who identified as Hispanic, at increasing levels of psychosocial stress, allostatic load scores were decreasing. This was an unexpected finding. We attempted to tease out this relationship by examining Loess plots, to determine if this effect among Hispanics was being driven by a few outlier values, and we didn't find any support for this theory. We also re-ran the individual model assessing race/ethnicity as a potential moderator, with respect to the summary index measure of overall stress with allostatic load, by removing the four individuals with the highest allostatic load scores, but race/ethnicity was still a statistically significant moderator (before removal: β=-0.3440, CI: [-0.6537, -0.0343], p=0.0298 and after removal: β=-0.2822, CI: [-0.5632, -0.0012], p=0.0490) of the summary index measure of overall stress. However, it is important to note, that we only had 38 Hispanic individuals in our analytic sample and 39 non-Hispanic others. Therefore, drawing any conclusions based on these findings among Hispanics, or the findings among the non-Hispanic

others, is subject to results from using very small sample sizes. In light of these unexpected findings, among our 38 Hispanics, further studies are needed that will examine this relationship between psychosocial stress and allostatic load among a majority Hispanic population. This should also include investigations into sub-populations of Hispanics based on immigration status, due to the possibility of immigration status modifying these findings. Although the results found here did not find a statistically significant interaction between non-Hispanic others and the summary index measure of overall stress, further studies should also look into this relationship between psychosocial stress and allostatic load among individuals who do not identify as non-Hispanic black, non-Hispanic white or Hispanic to confirm or refute these null findings.

We also examined the potential moderating role of race/ethnicity, with respect to the relationships between each of the summary index component psychosocial stress domains with allostatic load, and found that it moderated the effects of three of the summary index component psychosocial stress domains (psychological work stress, relationship stress, and past year problems in the immediate family). Psychological work stress was shown to have a statistically significant interaction with individuals who identified as Hispanic (reference group: non-Hispanic whites), when race/ethnicity was assessed individually and when in combination with the age and marital status moderators. Psychological work stress also had a statistically significant interaction with individuals who identified as non-Hispanic black (reference group: non-Hispanic whites), but only when race/ethnicity was assessed in combination with the age and marital status moderators. Among those who identified as non-Hispanic white and experienced psychological work stress, as their levels of psychological work stress increased there was almost no change in their allostatic load scores. However, among those who identified as non-Hispanic black or non-Hispanic other, as their psychological work stress increased, so did

their allostatic load scores, which was as expected. Again, as seen in relation to the summary index measure of overall stress, among those who identified as Hispanic, as their psychological work stress increased, their allostatic load scores decreased.

For individuals who experienced relationship stress, there was a statistically significant interaction between relationship stress and with individuals who identified as non-Hispanic other (reference group: non-Hispanic whites), when race/ethnicity was assessed individually and when in combination with the age and marital status moderators. Among those who identified as non-Hispanic white or non-Hispanic black and experienced relationship stress, as their levels of relationship stress increased, so did their allostatic load scores, which was as expected and paralleled the findings for the summary index measure of overall stress. Among those who identified as Hispanic, there was very little change in their allostatic load scores as their relationship stress increased. However, among those who identified as non-Hispanic other, as their relationship stress increased, their allostatic load scores decreased.

Lastly, past year problems in the immediate family was found to have a statistically significant interaction with those who identified as non-Hispanic black (reference group: non-Hispanic whites), but only when race/ethnicity was assessed in combination with the age and marital status moderators. Among those who identified as non-Hispanic white or Hispanic and experienced past year problems in the immediate family, there was very little change in their allostatic load scores as their past year problems in the immediate family increased. However, among those individuals who identified as non-Hispanic other, as their levels of past year problems in the immediate family increased, their allostatic load scores decreased. As seen in relation to the summary index measure of overall stress, among those who identified as non-

Hispanic black, as their levels of past year problems in the immediate family increased, their allostatic load scores also increased.

As mentioned previously, we only had 38 Hispanics in our analytic sample and 39 non-Hispanic others. Therefore, drawing any conclusions based on these findings among Hispanics, or the findings among the non-Hispanic others, is subject to results from using very small sample sizes. For both psychological work stress and past year problems in the immediate family that showed a statistically significant interaction with those who identified as non-Hispanic black, it may be due to the non-Hispanic whites (the reference group) showing almost no change in allostatic load scores as these respective component measures of psychosocial stress levels increased, whereas, among individuals who identified as non-Hispanic black, their allostatic load scores were shown to increase as these respective component measures of psychosocial stress levels increased. Therefore, there appears to be more variability in the allostatic load scores across levels of these two component psychosocial stress measures among individuals who identify as non-Hispanic black compared to those individuals who identify as non-Hispanic white.

Marital Status

Marital status was also identified as a statistically significant moderator, with respect to the relationship between the summary index measure of overall stress with allostatic load, but only when marital status was assessed individually. Among those individuals who indicated that they had never been married, there was very little change in their allostatic load scores as their overall levels of psychosocial stress increased. However, among those who indicated that they were married or living with someone in a marriage-like relationship or that they had been separated or divorced, as their overall levels of psychosocial stress increased, their was a slight

increase in their allostatic load scores. Among those individuals who indicated that they were widowed, as their overall levels of psychosocial stress increased, there was a dramatic increase in their allostatic load scores. This was most likely due to these individuals who indicated that they were widowed, within our analytic sample, being much older compared to the individuals who were indicated that they were married or living with someone in a marriage-like relationship: the reference group (average age=66.32 years (SD=10.9 years) compared to 54.53 years (SD=11.45 years), respectively). Therefore, once the age moderator was included in the individual moderation model for marital status, the moderating role of marital status was reduced to marginal non-significance (β=0.2104, CI: [-0.0012, 0.4221], p=0.0513).

We then examined the potential moderating role of marital status, with respect to the relationships between each of the summary index component psychosocial stress domains with allostatic load, and found that it moderated the effects of four of the summary index component psychosocial stress domains (relationship stress, neighborhood stress, past year problems in the immediate family and stressful life experiences). Across each of these four summary index component psychosocial stress domains, among those individuals who indicated that they were widowed, as their levels of each of these respective component psychosocial stress domains increased, so did their allostatic load scores, which the same pattern seen with respect to the summary index measure of overall stress. However, across each of these four summary index component psychosocial stress domains, for individuals who indicated that they were in one of the remaining three marital status categories (married or living with someone in a marriage-like relationship, separated or divorced, or never married), there was very little change in their allostatic load scores as their overall levels of these respective component psychosocial stress domain increased. These marital status patterns were found both when marital status was

assessed individually and also when marital status was assessed in combination with the age and race/ethnicity moderators, with the exception of neighborhood stress, which only found marital status to be a statistically significant moderator when assessed in combination with the age and race/ethnicity moderators.

These four summary index component measures of psychosocial stress: relationship stress, neighborhood stress, past year problems in the immediate family and stressful life experiences were likely some of the largest contributors to the moderating role of marital status, with respect to the relationship between the summary index measure of overall stress with allostatic load, due to the loss of a spouse (i.e., being widowed) being the significant stressor in each of these component measures of psychosocial stress. For example, it may be that losing the spouse triggered the relationship stress, the past year problems in the immediate family and be the stressful life experience. For individuals who experienced neighborhood related stress and who were also widowed, it may be these individuals lost a major or secondary source of income, due to the loss of a spouse, that lead to a change in ones neighborhood quality, either by having to accommodate to more affordable housing or moving into a new living arrangement in a less ideal neighborhood setting which, therefore, increased their stress due to their new neighborhood environment.

6.3 Aim 4

Lastly, we were interested in assessing the question of possible moderation of our main effects by psychosocial resource characteristics, which included six psychological well-being scales, nine coping scales and seven personality trait scales. We found none of these psychosocial resource characteristics to be statistically significant moderators, with respect to the relationship between the summary index measure of overall stress with allostatic load. However,

when examining the moderating role of these psychosocial resource characteristics across age, gender and educational attainment strata, eleven psychosocial resource characteristics were found to be statistically significant moderators, with respect to the relationship between the summary index measure of overall stress with allostatic load, within a select few sociodemographic subgroups.

Age Stratified Analyses

For those individuals who were between the ages of 46-54, two coping scales: active coping and behavioral disengagement were found to be statistically significant moderators, with respect to the relationship between the summary index measure of overall stress with allostatic load. Individuals who reported higher levels of active coping exhibited the strongest relationship between the summary index measure of overall stress with allostatic load, such that at low levels of overall psychosocial stress these individuals had the lowest allostatic load scores but at high levels of overall psychosocial stress these individuals had the highest allostatic load scores. Thus, indicating that at higher levels of overall psychosocial stress, active coping may be problematic. The reverse relationship was seen with regards to behavioral disengagement. Individuals who reported the lowest levels of behavioral disengagement exhibited the strongest relationship between the summary index measure of overall stress with allostatic load, such that at low levels of overall psychosocial stress these individuals had the lowest allostatic load scores but at high levels of overall psychosocial stress these individuals had the highest allostatic load scores. Thus, indicating that at higher levels of overall psychosocial stress, behavioral disengagement may be beneficial. The fact that these effects are seen only among individuals between the ages of 46-54 may be due to the fact that these individuals are the ones who frequently confront the widest array of stressors, as a function of, for example, being in the work force and raising families,

compared to individuals in the youngest and oldest two age groups who are perhaps less likely to have as many sources of stress.

Gender Stratified Analyses

Among females, it was found that the coping scale: using food to cope was a statistically significant moderator with respect to the relationship between the summary index measure of overall stress with allostatic load. Females who did not use food to cope demonstrated the strongest relationship between the summary index measure of overall stress with allostatic load, such that at low levels of overall psychosocial stress these individuals had the lowest allostatic load scores. However, at high levels of overall stress, their allostatic load scores converged with the individuals who used food to cope, such that there was no differentiation seen across women who have varying degrees of using food to cope with respect to their allostatic load scores. Therefore, it may be that at low levels of overall psychosocial stress, using food to cope is harmful for women, but this effect washes out at higher levels of overall psychosocial stress.

In contrast, among males, using food to cope was again found to be a statistically significant moderator, as was the coping scale: focus on and venting of emotions, with respect to the relationship between the summary index measure of overall stress with allostatic load. Among individuals who reported higher levels of both, using food to cope and focus on and venting of emotions, the strongest relationships were seen between the summary index measure of overall stress with allostatic load, such that at low levels of overall psychosocial stress these individuals had the lowest allostatic load scores but at high levels of overall psychosocial stress these individuals had the highest allostatic load scores. Thus, indicating that at higher levels of overall psychosocial stress, both using food to cope and focus on and venting of emotions may be damaging among men.

Educational Attainment Stratified Analyses

Across educational attainment categories, select psychosocial resource characteristics were found to be moderators, with respect to the relationship between the summary index measure of overall stress with allostatic load, but only among those individuals within the highest educational attainment group (i.e., those with a bachelor's degree or more). Moderation was found for three psychological well-being scales (environmental mastery, positive relations with others and self-acceptance), one coping scale (focus on and venting of emotions) and two personality trait scales (the shorter version of conscientiousness and agreeableness). For environmental mastery, positive relations with others and self-acceptance, having these psychological well-being characteristics appeared to be protective against greater allostatic load at higher levels of psychosocial stress. However, at lower levels of psychosocial stress, having greater psychological well-being was associated with having the highest levels of allostatic load. For focus on and venting of emotions, using this coping style was associated with the greatest increase in allostatic load scores as overall levels of psychosocial stress increased. For conscientiousness and agreeableness, having these adaptable personality traits appeared to be protective against greater allostatic load at higher levels of psychosocial stress. However, at lower levels of psychosocial stress, having these two personality traits was associated with having the highest levels of allostatic load.

Each of these six psychosocial resource characteristics, that moderator the experience of the summary index of overall stress among those in the highest educational attainment group, represent a positive strategy to combat stress, through the experience of a greater degree of psychological well-being, a proactive coping behavior and/or having an adaptable personality trait. It has been shown that "schooling increases the efficacy, problem-solving skills, ability to

process information and locus of control needed to overcome obstacles," which may alter ones expression of certain psychosocial resources or the experience of psychosocial stress [137]. Therefore, it may be that these characteristics moderate the relationship between the summary index measure of overall stress with allostatic load, such that individuals who are in the lower educational attainment groups may demonstrate a clustering effect at lower degrees of psychological well-being, less proactive coping behaviors and non-adaptable personality traits leading to a greater effect of these positive psychosocial resource characteristics among those individuals in the highest educational attainment group. Lower educational attainment groups may also represent individuals of generally lower SES who may experience a greater range to disadvantages that undermine the potentially protective effects of these psychosocial resource characteristics, such that these individuals are less able to moderate the relationship between the summary index measure of overall stress with allostatic load.

CHAPTER VII. Limitations

There are three notable limitations to the present investigation. The first is the potential lack of generalizability of the study findings to other populations due to (a) the method of participant selection (selected among those individuals with landline telephones), (b) participant refusal rates, (c) not fully implementing a national equal probability random sample of participants (oversampling of African-Americans from Milwaukee and a subsample of twins) and (d) not including a very racially/ethnically diverse population (76.04% of the MIDUS II biomarker study sample participants were non-Hispanic white). The second notable limitation is that the data for this study come from one time-point and are not assessed longitudinally. The final limitation, as with all analytical modeling, is that our models are subject to the modeling assumptions of our chosen analytic approach.

7.1 Lack of Generalizability

The initial MIDUS study population was recruited in 1995, when landline based telephone recruitment strategies were common. Although this form of participant selection should reduce the bias from this sampling method, some potential participants were likely excluded based on their not owning a landline telephone. Thus, our population was defined as those individuals who own and use a landline telephone. A number of studies have shown that there are some inherent differences between the population that has and uses a landline telephone and the population without a landline telephone, with respect to their population demographics, economics and health characteristics [138-140]. Telephone coverage is lower for population subgroups that include African-Americans living in the South, individuals who have lower incomes, live in rural areas, have less than 12 years of education, poorer health and who are the heads of the household under the age of 25 [141]. However, the descriptive characteristic

estimates of the entire recruited population for the MIDUS study are unlikely to be substantially biased by the omission of those households that do not have a landline telephone [141].

It has also been shown that refusal rates are higher in telephone-based surveys than in face-to-face interviews [141]. The overall response rate was 60.8% for the MIDUS I main study. The follow-up MIDUS II resurvey study had a response rate of 56.7% out of those who completed the MIDUS I main study. Of those participants completing the MIDUS II resurvey study, 39.3% agreed to participate in the MIDUS II biomarker study. Thus, a very small percentage of the original respondents from the MIDUS I main study made it all the way until the MIDUS II biomarker study. Of the 3,191 eligible participants for the MIDUS II biomarker study, 45.1% refused to participate, 6.9% never made a decision as to whether or not they wanted to participate, 6.2% were unable to be located and 2.5% were never able to be contacted [29]. Among those who refused to participate, the majority indicated that travel was one of their main barriers for participation (32%), followed by having family obligations that did not allow them to participate (22.5%), being too busy to participate (22.4%) and simply not interested (22.1%) [29]. Nonetheless, the MIDUS II biomarker study sample was not significantly different from the MIDUS II resurvey study sample with regards to age, gender, race/ethnicity, marital status, or income, although respondents in the MIDUS II biomarker study were significantly more likely to have a college degree and significantly less likely to have only high school or some college compared with the national sample (Table 7.1) [29]. Regardless, more than half of the MIDUS II biomarker study participants came from the lower educational category. This result, combined with the similarity on income, indicates that the MIDUS II biomarker study sample is particularly useful for inquiries related to social inequalities in health—a major thematic focus in publications from the MIDUS studies thus far [29].

TABLE 7.1: Comparison of the Sociodemographic and Health Characteristics between the Project I (MIDUS II resurvey) and Project 4 (MIDUS II biomarker project) Samples

	MIDUS II project			
	Project 1	Project 1	Project 4	Project 4
	Interview sample[a] (n = 5,500)	Interview and SAQ sample[b] (n = 4,006)	Bioindicator sample (n = 1,255)	Nonrespondents (n = 1,992)
Demographic characteristics				
Age (*M*, *SD*)	55.0 (12.4)	55.4 (12.4)	54.5 (11.7)	55.8[c] (12.9)
Female (%)	54.3	56.1	56.8	56.7
Education				
High school/some college (%)	57.9	57.4	52.2[c,d]	61.4[c,d]
College grad or more (%)	34.5	34.3	42.1[c,d]	28.4[c,d]
White (%)	81.0	77.9	78.3	75.3[c,d]
Married (%)	70.5	68.6	69.2	67.4[c]
Personal income (*M*)	39,842	39,755	41,538	36,871[d]
Health characteristics				
Subjective physical health (*M*, *SD*; range: 1 = *excellent*, 5 = *poor*)	2.52 (1.0)	2.54 (1.0)	2.41 (0.9)	2.63[c,d] (1.1)
Body mass index (*M*, *SD*; range: 14.2-82.3)	28.3 (6.3)	28.4 (6.3)	28.5 (6.1)	28.5 (6.4)
Instrumental activities of daily living (*M*, *SD*; range: 1 = *limited*, 4 = *not at all limited*)	1.82 (0.90)	1.83 (0.90)	1.75 (0.86)	1.87 (0.93)
Use of at least one alternative therapy (%)	32.7	32.6	37.6[c,d]	30.5
Health insurance coverage (%)	81.2	81.0	79.9	82.0
Currently smoking cigarettes (%)	16.8	16.6	13.8[c,d]	18.5
Ever drank 3+ days/week (%)	38.1	37.1	37.8	35.2
No. of physician visits—12 months (*M*, *SD*)	4.4 (8.3)	4.4 (8.7)	4.8 (12.8)	4.2 (6.2)
No. of chronic conditions (*M*, *SD*)	3.3 (2.5)	3.3 (2.5)	3.1 (2.4)	3.4 (2.6)
No. of times exercise vigorously/month (*M*, *SD*)	3.6 (3.36)	3.7 (3.38)	3.7 (3.34)	3.6 (3.42)

Note: MIDUS = Midlife in the United States.
a. Respondent completed a phone interview, or for Milwaukee, a personal interview.
b. Recruitment pool for Project 4, respondents completed an interview and self-administered questionnaire (SAQ).
c. Significantly different from Project 1 interview sample at $p < .01$.
d. Significantly different from Project 1 interview and SAQ sample at $p < .01$.

The initial MIDUS I main study was also not a truly nationally representative sample, as there was a number of oversamples from specific population subgroups (cities: Boston, Atlanta, Chicago, Phoenix and San Francisco, siblings of selected MIDUS I participants, twins and African Americans from Milwaukee). The final sample of participants, thus, for the MIDUS I main study, the MIDUS II resurvey study and/or the MIDUS II biomarker study may not be an actual representative sample of any particular population.

The final MIDUS I main study sample (and subsequently the MIDUS II resurvey sample and the MIDUS II biomarker sample) also had lower representation of racial/ethnic minorities and lower SES individuals compared to the general U.S. populations [16]. Given this predominately non-Hispanic white sample, at MIDUS II, an oversample of African-Americans

from Milwaukee was selected to assess the differences that may exist from a minority population. However, even this over-sample from Milwaukee may not be generalizable to other African-Americans located across neighboring towns and cities across the country. Once including this MIDUS II oversample of African Americans from Milwaukee, there was still a very limited distribution of racial/ethnic groups (76.04% were non-Hispanic white and 17.39% were non-Hispanic black; only 3.29% were Hispanic and non-Hispanic 'other' accounted, again, for only 3.29%) in the MIDUS II biomarker study. Therefore, further studies should reassess any MIDUS findings in a more racially and ethnically diverse population.

7.2 Data Not Assessed Longitudinally

The second notable limitation is that our data for this study come from one time-point and are not assessed longitudinally. Therefore, we are unable to control for allostatic load at baseline or examine factors that may influence a participant's prior allostatic load and compare it to their present allostatic load. This also applies to our other measures. We are not able to assess changes in our summary index measure of overall stress or our eleven summary index component measures of psychosocial stress over-time and determine how these changes may affect allostatic load. Nor are we able to assess whether changes in health behavior characteristics and select sociodemographic characteristics that can change over time, which have the potential to be significant contributors to allostatic load, may also change the participant's allostatic load over time. Thus, further research is warranted to address this issue.

CHAPTER VIII: Conclusions

There are three major conclusions that can be drawn from the present analyses. First, we have demonstrated that increases in a summary index measure of overall stress, as an aggregate measure of specific dimensions of psychosocial stress, are associated with greater allostatic load scores across a national sample of adults. It may also be, that after assessment of the eleven summary index component psychosocial stress domains, that individuals who experience some of the more uncontrollable and unpredictable types of psychosocial stress may have the strongest associations with allostatic load, although further research is needed to ascertain the extent to which these types of stress domains (as compared with others) are indeed more strongly related to allostatic load. Second, that the identified relationship between the experience of overall psychosocial stress with allostatic load appears to be the most strongly associated among individuals who are in the younger age groups – a finding that is consistent with the published scientific literature showing that there is a similar weakening of other risk factor associations with health outcomes at older ages. Evidence from this study also suggest a possible racial/ethnic difference in the pattern of relationship between the experience of overall psychosocial stress with allostatic load (with Hispanics showing a negative/reverse pattern of association), however, this finding is open to considerable debate in view of the extremely small number of such Hispanics in the MIDUS sample and, therefore, requires further attention before any conclusions can be drawn. Third, we found that, within certain sociodemographic subgroups, that having good psychosocial resource characteristics, such as greater psychological well-being, proactive coping behaviors and adaptable personality traits can mitigate the relationship between the experience of overall psychosocial stress with allostatic load, though our data suggest that this may be largely restricted to those with higher education.

Overall, the findings presented here do provide initial evidence for their being a link between the experience of overall psychosocial stress and adult physiological health. Further studies are needed that continue to evaluate how psychosocial stress is related to allostatic load and also to identify the extent to which interventions might be created to target the modifiable, or even the less modifiable (such as urban planning projects for neighborhood quality, financial planning courses for individuals who struggle to balance their finances, etc.), psychosocial stress risk factors for allostatic load, with an emphasis on learning how to use positive psychosocial resource behaviors, that could help to mitigate the impact of allostatic load when faced with high levels of psychosocial stress.

TABLE 5.1: Comparison of the sociodemographic and health behavior characteristics between the MIDUS II biomarker study participants, those who were excluded and the analytic sample

	Biomarker Sample (n=1,255)				Excluded (n=73)				Analytic Sample (n=1,182)			
	n	**%**	**Mean (SD)**	**Range**	**n**	**%**	**Mean (SD)**	**Range**	**n**	**%**	**Mean (SD)**	**Range**
Sociodemographics												
Age (years)			54.52 (11.72)	34 – 84			56.71 (11.78)	35 – 83			54.39 (11.71)	34 – 84
First Quartile	325	25.90	40.40 (3.148)	34 – 45	13	17.81	39.38 (2.567)	35 – 43	312	26.40	40.45 (3.166)	34 – 45
Second Quartile	332	26.45	50.08 (2.641)	46 – 54	17	23.29	50.29 (2.443)	46 – 54	315	26.65	50.06 (2.655)	46 – 54
Third Quartile	287	22.87	58.34 (2.277)	55 – 62	20	27.40	57.85 (2.033)	55 – 61	267	22.59	58.37 (2.293)	55 – 62
Fourth Quartile	311	24.78	70.50 (5.752)	63 – 84	23	31.51	70.26 (6.319)	63 – 83	288	24.37	70.52 (5.716)	63 – 84
Gender												
Female	713	56.81			47	64.38			666	56.35		
Male	542	43.19			26	35.62			516	43.65		
Race/Ethnicity	1,248				66							
Non-Hispanic White	949	76.04			55	83.33			894	75.63		
Non-Hispanic Black	217	17.39			6	9.09			211	17.85		
Non-Hispanic Other	41	3.29			2	3.03			39	3.30		
Hispanic	41	3.29			3	4.55			38	3.21		
Family-Adjusted Poverty to Income Ratio*	1,225		4.977 (3.552)	0.000 – 13.31	43		4.545 (3.497)	0.000– 12.49			4.993 (3.554)	0.000 – 13.31
First Quartile	309	25.22	1.136 (0.7541)	0.000 – 2.362	15	34.88	1.110 (0.8104)	0.000 – 2.322	294	24.87	1.137 (0.7526)	0.000 – 2.362
Second Quartile	305	24.90	3.289 (0.5272)	2.365 – 4.176	9	20.93	3.243 (0.4631)	2.592 – 3.696	296	25.04	3.290 (0.5297)	2.365 – 4.176
Third Quartile	304	24.82	5.412 (0.7779)	4.180 – 6.989	8	18.60	5.677 (0.6066)	4.817 – 6.831	296	25.04	5.405 (0.7816)	4.180 – 6.989
Fourth Quartile	307	25.06	10.09 (2.199)	7.008 – 13.31	11	25.58	9.470 (1.760)	7.481 – 12.49	296	25.04	10.11 (2.213)	7.008 – 13.31
Educational Attainment	1,242				60							
<HS Diploma/GED	344	27.70			16	26.67			328	27.75		
Some College/AA	371	29.87			23	38.33			348	29.44		
BA/BS+	527	42.43			21	35.00			506	42.81		
Marital Status												
Married; Living w/Someone	812	64.70			48	65.75			764	64.64		
Separated; Divorced	217	17.29			12	16.44			205	17.34		
Widowed	88	7.01			6	8.22			82	6.94		
Never Married	138	11.0			7	9.59			131	11.08		
Health Behaviors												
Physical Activity (avg. min. per/week)*	1,250		180.7 (214.5)	0.000 – 800.0	68		172.6 (202.1)	0.000 – 800.0			181.1 (215.3)	0.000 – 800.0
First Quartile	318	25.44	1.488 (5.421)	0.000 – 25.00	22	32.35	1.515 (5.318)	0.000 – 23.33	296	25.04	1.486 (5.438)	0.000 – 25.00
Second Quartile	308	24.64	66.59 (22.56)	26.67 – 106.7	9	13.24	70.19 (23.65)	40.00 – 106.7	299	25.30	66.48 (22.56)	26.67 – 106.7
Third Quartile	313	25.04	164.4 (39.47)	108.0 – 241.3	20	29.41	166.0 (32.50)	120.0 – 220.0	293	24.79	164.3 (39.94)	108.0 – 241.3
Fourth Quartile	311	24.88	493.2 (198.0)	241.7 – 800.0	17	25.00	455.9 (194.8)	250.0 – 800.0	294	24.87	495.3 (198.3)	241.7 – 800.0
Smoking Status (lifetime)												
Never Smoker	658	52.43			42	57.53			616	52.12		
Past Smoker	410	32.67			20	27.40			390	32.99		
Current Smoker	187	14.90			11	15.07			176	14.89		
Alcohol Use (past month)	1,246				64							
Abstainer	437	35.07			26	40.63			411	34.77		
Light/Moderate	636	51.04			31	48.44			605	51.18		
Heavy	173	13.88			7	10.94			166	14.04		

*Top-coded variables

TABLE 5.2: Comparison of the allostatic load scores, domains of psychosocial stress and psychosocial resource values between the MIDUS II biomarker study participants, those who were excluded and the analytic sample

	Biomarker Sample (n=1,255)			Excluded (n=73)			Analytic Sample (n=1,182)		
	n	**Mean (SD)**	**Range**	**n**	**Mean (SD)**	**Range**	**n**	**Mean (SD)**	**Range**
Allostatic Load	1,242	1.967 (1.149)	0 – 5.567	60	2.226 (1.326)	0.2000 – 4.737		1.954 (1.139)	0 – 5.567
Psychosocial Stressors[a]									
Summary Index Measure of Overall Stress*		0.0961 (0.9816)	-2.138 – 2.262		0.0339 (1.111)	-1.745 – 2.262		0.1000 (0.9735)	-2.138 – 2.262
Psychological Work Stress*		0.3204 (0.7941)	-0.7799 – 1.571		0.1053 (0.7997)	-0.7799 – 1.571		0.3337 (0.7921)	-0.7799 – 1.571
Physical Work Stress		0.1005 (0.9850)	-1.108 – 2.536		0.1470 (0.9949)	-1.108 – 2.536		0.0976 (0.9847)	-1.108 – 2.536
Work-Family Spillover Stress		0.1547 (0.9716)	-0.9917 – 4.052		0.0207 (0.9783)	-0.9917 – 2.791		0.1630 (0.9710)	-0.9917 – 4.052
Perceived Inequality*		-0.1218 (0.8449)	-1.249 – 1.763		-0.1500 (0.9013)	-1.249 – 1.763		-0.1200 (0.8417)	-1.249 – 1.763
Relationship Stress*		0.0140 (0.9473)	-2.030 – 1.977		-0.0060 (0.9921)	-1.880 – 1.977		0.0152 (0.9449)	-0.2030 – 1.977
Neighborhood Stress*		-0.1749 (0.6973)	-0.9348 – 1.322		-0.1156 (0.8036)	-0.9348 – 1.322		-0.1786 (0.6904)	-0.9348 – 1.322
Discrimination*		0.0963 (0.9532)	-0.9315 – 2.444		0.1281 (1.044)	-0.9315 – 2.444		0.0944 (0.9478)	-0.9315 – 2.444
Current Financial Stress		-0.0409 (1.049)	-2.106 – 2.043		-0.0270 (1.162)	-1.754 – 2.043		-0.0418 (1.042)	-2.106 – 2.043
Past Year Problems in the Immediate Family*		0.0818 (0.9643)	-0.9326 – 2.521		-0.0161 (0.9431)	-0.9326 – 2.521		0.0879 (0.9656)	-0.9326 – 2.521
Stressful Life Experiences*		0.1045 (0.9062)	-1.242 – 2.110		0.1269 (1.001)	-1.242 – 2.110		0.1031 (0.9004)	-1.242 – 2.110
Early Life Stress*		-0.0053 (0.9151)	-1.789 – 1.939		-0.0630 (0.8981)	-1.789 – 1.939		-0.0017 (0.9164)	-1.789 – 1.939
Psychosocial Resources									
Psychological Well-Being Scales[b]									
Autonomy	1,250	37.34 (6.695)	14 – 49		37.98 (7.284)	18 – 49	1,117	37.30 (6.658)	14 – 49
Environmental Mastery*		38.41 (7.199)	25 – 49		37.43 (7.199)	25 – 49		38.47 (7.198)	25 – 49
Personal Growth*		39.57 (6.356)	27 – 49		39.93 (6.602)	27 – 49		39.55 (6.342)	27 – 49
Positive Relations with Others*		40.64 (6.787)	27 – 49		40.90 (6.654)	27 – 49		40.62 (6.797)	27 – 49
Purpose in Life*		39.51 (6.338)	27 – 49		39.28 (6.267)	27 – 49		39.52 (6.344)	27 – 49
Self-Acceptance*		38.54 (7.678)	23 – 49		38.34 (8.153)	23 – 49		38.55 (7.651)	23 – 49
Coping Scales									
Positive Reinterpretation and Growth[c]	1,245	12.52 (2.374)	4 – 16	72	12.58 (2.336)	8 – 16	1,173	12.52 (2.378)	4 – 16
Active Coping[c]	1,246	12.59 (2.164)	4 – 16	72	12.75 (2.360)	6 – 16	1,174	12.58 (2.152)	4 – 16
Planning[c]	1,246	13.06 (2.316)	4 – 16	72	13.33 (2.391)	6 – 16	1,174	13.04 (2.312)	4 – 16
Focus on and Venting of Emotions[c]	1,246	9.282 (2.776)	4 – 16	72	9.602 (2.749)	4 – 16	1,174	9.262 (2.780)	4 – 16
Denial*[c]	1,246	5.986 (1.972)	4 – 10	72	6.000 (1.936)	4 – 10	1,174	5.985 (1.975)	4 – 10
Behavioral Disengagement*[c]	1,245	6.798 (2.141)	4 – 11	72	6.713 (2.048)	4 – 11	1,173	6.803 (2.148)	4 – 11
Using Food to Cope*[d]	1,246	3.807 (1.874)	2 – 8	72	3.708 (1.707)	2 – 8	1,174	3.813 (1.884)	2 – 8
Problem Focused Coping[e]	1,245	38.17 (5.922)	12 – 48	72	38.67 (6.400)	20 – 48	1,173	38.14 (5.892)	12 – 48
Emotion Focused Coping*[e]	1,246	22.03 (5.061)	12 – 32	72	22.26 (4.908)	13 – 32	1,174	22.02 (5.071)	12 – 32
Personality Trait Scales[f]									
Neuroticism	1,249	2.049 (0.6444)	1.0 – 4.0		2.111 (0.6386)	1.0 – 3.5	1,176	2.045 (0.6448)	1.0 – 4.0
Extraversion	1,249	3.144 (0.5763)	1.2 – 4.0		3.179 (0.6093)	1.6 – 4.0	1,176	3.142 (0.5744)	1.2 – 4.0
Openness to Experience	1,240	2.968 (0.5314)	1.0 – 4.0	71	3.024 (0.5750)	1.6 – 4.0	1,169	2.964 (0.5287)	1.0 – 4.0
Conscientiousness (v1)*		3.453 (0.4360)	2.5 – 4.0		3.454 (0.4488)	2.5 – 4.0		3.452 (0.4354)	2.5 – 4.0
Conscientiousness (v2)*		3.387 (0.4285)	2.6 – 4.0		3.373 (0.4362)	2.6 – 4.0		3.388 (0.4282)	2.6 – 4.0
Agreeableness*		3.440 (0.4842)	2.4 – 4.0		3.513 (0.4609)	2.4 – 4.0		3.435 (0.4854)	2.4 – 4.0
Agency	1,248	2.651 (0.6606)	1.0 – 4.0		2.713 (0.6474)	1.4 – 4.0	1,175	2.647 (0.6615)	1.0 – 4.0

*Top-coded variables

[a]Values are standardized to a z-score with a mean of zero and standard deviation of one

[b]Values are summed scores (range: 4 – 49); [c](range 2 – 16); [d](range 1 – 8); [e](range 6 – 48)

[f]Values are mean scores (range 1 – 4)

TABLE 5.3: Examining the summary index measure of overall stress, as a predictor of allostatic load, through linear mixed effect regression analyses unadjusted and adjusted for sociodemographic and health behavior characteristics

	Model 1[a] (n=1,242)		Model 2[b] (n=1,195)		Model 3[c] (n=1,182)	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95%CI**
Summary Index Measure of Overall Stress	0.0108 (0.0354)	(-0.0591, 0.0807)	0.1402 (0.0376)	**(0.0659, 0.2146)*** **	0.1302 (0.0379)	**(0.0551, 0.2054)*** **

***p<0.001

[a]Adjusted for data collection site, current employment status, whether or not the participant had a child(ren) and whether or not the participant was married

[b]Adjusted for Model 1 covariates and age, gender, race/ethnicity, family-adjusted poverty to income ratio, educational attainment and marital status

[c]Adjusted for Model 2 covariates and average number of minutes of physical activity per week, lifetime smoking status and past month alcohol use

TABLE 5.4: Examining, individually, the eleven summary index component psychosocial stress domains, as predictors of allostatic load, through linear mixed effect regression analyses unadjusted and adjusted for sociodemographic and health behavior characteristics

	Model 1[a] (n=1,242)		Model 2[b] (n=1,195)		Model 3[c] (n=1,182)	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Psychological Work Stress[1]	-0.1437 (0.0555)	**(-0.2533, -0.0340)***	-0.0190 (0.0553)	(-0.1284, 0.0905)	0.0099 (0.0535)	(-0.0961, 0.1159)
Physical Work Stress[1]	-0.0326 (0.0331)	(-0.0981, 0.0329)	0.0400 (0.0328)	(-0.0249, 0.1049)	0.0456 (0.0327)	(-0.0191, 0.1103)
Work-Family Spillover Stress[1]	-0.1294 (0.0399)	**(-0.2083, -0.0505)****	-0.0189 (0.0402)	(-0.0984, 0.0606)	-0.0238 (0.0396)	(-0.1023, 0.0547)
Perceived Inequality[1,2]	0.0592 (0.0382)	(-0.0162, 0.1346)	0.1011 (0.0401)	**(0.0217, 0.1804)***	0.0838 (0.0401)	**(0.0043, 0.1633)***
Relationship Stress[3]	-0.0427 (0.0365)	(-0.1147, 0.0294)	0.0669 (0.0346)	(-0.0017, 0.1354)	0.0620 (0.0345)	(-0.0063, 0.1304)
Neighborhood Stress	0.0406 (0.0455)	(-0.0492, 0.1304)	0.0720 (0.0462)	(-0.0195, 0.1634)	0.0592 (0.0454)	(-0.0307, 0.1490)
Discrimination[1]	0.0570 (0.0332)	(-0.0085, 0.1226)	0.1306 (0.0339)	**(0.0636, 0.1976)*****	0.1317 (0.0335)	**(0.0654, 0.1980)*****
Current Financial Stress	0.0662 (0.0307)	**(0.0054, 0.1269)***	0.1318 (0.0324)	**(0.0677, 0.1959)*****	0.1116 (0.0321)	**(0.0481, 0.1751)*****
Past Year Problems in the Immediate Family[2,3]	-0.0386 (0.0347)	(-0.1071, 0.0299)	0.0490 (0.0331)	(-0.0164, 0.1144)	0.0407 (0.0325)	(-0.0236, 0.1050)
Stressful Life Experiences	0.1218 (0.0357)	**(0.0514, 0.1923)*****	0.1147 (0.0375)	**(0.0405, 0.1888)****	0.0908 (0.0384)	**(0.0148, 0.1668)***
Early Life Stress	0.0058 (0.0368)	(-0.0668, 0.0784)	0.0442 (0.0350)	(-0.0250, 0.1134)	0.0442 (0.0342)	(-0.0235, 0.1119)

*p<0.05; **p<0.01; ***p<0.001

[a]Adjusted for data collection site

[b]Adjusted for Model 1 covariates and age, gender, race/ethnicity, family-adjusted poverty to income ratio, educational attainment and marital status

[c]Adjusted for Model 2 covariates and average number of minutes of physical activity per week, lifetime smoking status and past month alcohol use

[1]Adjusted for current employment status

[2]Adjusted for whether or not the participant had a child(ren)

[3]Adjusted for whether or not the participant was married

TABLE 5.5: Examining, individually, the moderating role of age, gender and race/ethnicity with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Continuous)		Model 2: Age (Quartiles)		Model 3: Gender		Model 4: Race/Ethnicity	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects								
Summary Index Measure (SIM)	0.2932 (0.1646)	(-0.0329, 0.6192)	0.1805 (0.0733)	(0.0352, 0.3258)	0.1553 (0.0468)	(0.0626, 0.2479)	0.1308 (0.0437)	(0.0442, 0.2174)
Age (years; continuous)	0.0391 (0.0031)	(0.0329, 0.0453)						
Age (years; quartiles)								
Ages 34-45 (REF)			–	–				
Ages 46-54			0.2997 (0.0896)	(0.1221, 0.4773)				
Ages 55-62			0.8341 (0.0906)	(0.6545, 1.014)				
Ages 63-84			1.058 (0.1006)	(0.8582, 1.257)				
Gender								
Female (REF)					–	–		
Male					-0.0157 (0.0633)	(-0.1410, 0.1096)		
Race/Ethnicity								
Non-Hispanic White (REF)							–	–
Non-Hispanic Black							0.1044 (0.1029)	(-0.0996, 0.3084)
Non-Hispanic Other							0.0865 (0.1921)	(-0.2941, 0.4671)
Hispanic							0.0473 (0.1509)	(-0.2518, 0.3463)
Interactions								
SIM x Age (years; continuous)	-0.0031 (0.0030)	(-0.0090, 0.0029)						
Age (years; quartiles)								
SIM x Ages 34-45 (REF)			–	–				
SIM x Ages 46-54			0.0117 (0.0955)	(-0.1776, 0.2011)				
SIM x Ages 55-62			-0.2227 (0.1013)	**(-0.4235, 0.0219)***				
SIM x Ages 63-84			-0.1306 (0.1100)	(-0.3486, 0.0874)				
Gender								
SIM x Female (REF)					–	–		
SIM x Male					-0.0653 (0.0656)	(-0.1953, 0.0647)		
Race/Ethnicity								
SIM x Non-Hispanic White (REF)							–	–
SIM x Non-Hispanic Black							0.0927 (0.0827)	(-0.0713, 0.2566)
SIM x Non-Hispanic Other							-0.1628 (0.1466)	(-0.4533, 0.1276)
SIM x Hispanic							-0.3440 (0.1563)	**(-0.6537, -0.0343)***

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.6: Examining, individually, the moderating role of the family-adjusted poverty to income ratio, educational attainment and marital status with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1[a]: Income Ratio (Continuous)		Model 2[a]: Income Ratio (Quartiles)		Model 3: Educational Attainment		Model 4: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects								
Summary Index Measure (SIM)	0.1235 (0.0589)	(0.0068, 0.2403	0.1218 (0.0625)	(-0.0021, 0.2457)	0.1622 (0.0632)	(0.0369, 0.2874)	0.1130 (0.0446)	(0.0247, 0.2013)
Income Ratio (continuous)[a]	-0.0007 (0.0091)	(-0.0186, 0.0173)						
Income Ratio (quartiles)[a]								
Income Ratio (0 – 2.362) (REF)			–	–				
Income Ratio (2.365 – 4.176)			-0.0198 (0.0896)	(-0.1973, 0.1578)				
Income Ratio (4.180 – 6.989)			-0.0364 (0.0899)	(-0.2145, 0.1418)				
Income Ratio (7.008 – 13.31)			-0.0282 (0.0952)	(-0.2168, 0.1604)				
Educational Attainment								
<HS Diploma/GED (REF)					–	–		
Some College/AA					-0.0331 (0.0813)	(-0.1941, 1279)		
BA/BS+					-0.2712 (0.0822)	(-0.4340, -0.1084)		
Marital Status								
Married; Living w/Someone (REF)							–	–
Separated; Divorced							0.0812 (0.1230)	(-0.1625, 0.3248)
Widowed							0.2820 (0.1464)	(-0.0080, 0.5720)
Never Married							0.2912 (0.1461)	(0.0016, 0.5808)
Interactions								
SIM x Income Ratio (continuous)[a]	0.0014 (0.0091)	(-0.0165, 0.0194)						
Income Ratio (quartiles)[a]								
SIM x Income Ratio (0 – 2.362) (REF)			–	–				
SIM x Income Ratio (2.365 – 4.176)			0.0714 (0.0844)	(-0.0958, 0.2387)				
SIM x Income Ratio (4.180 – 6.989)			-0.0891 (0.0857)	(-0.2589, 0.0806)				
SIM x Income Ratio (7.008 – 13.31)			0.0433 (0.0883)	(-0.1317, 0.2184)				
Educational Attainment								
SIM x <HS Diploma/GED (REF)					–	–		
SIM x Some College/AA					-0.0455 (0.0797)	(-0.2034, 0.1125)		
SIM x BA/BS+					-0.0446 (0.0770)	(-0.1972, 0.1080)		
Marital Status								
SIM x Married; Living w/Someone (REF)							–	–
SIM x Separated; Divorced							0.0524 (0.0906)	(-0.1271, 0.2319)
SIM x Widowed							0.2021 (0.0999)	**(0.0041, 0.4000)***
SIM x Never Married							-0.1055 (0.1078)	(-0.3191, 0.1082)

*p<0.05; **p<0.01; ***p<0.001

[a]Income is measured as the family-adjusted poverty to income ratio

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.7: Examining, individually, the moderating role of physical activity, smoking status and alcohol use with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1[a]: Physical Activity (Continuous)		Model 2[a]: Physical Activity (Quartiles)		Model 3: Smoking Status		Model 4: Alcohol Use	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects								
Summary Index Measure (SIM)	0.1181 (0.0470)	(0.0249, 0.2112)	0.1444 (0.0732)	(-0.0007, 0.2895)	0.1839 (0.0481)	(0.0885, 0.2793)	0.1894 (0.0587)	(0.0732, 0.3057)
Physical Activity (PA; continuous)[a]	-0.0007 (0.0001)	(-0.0010, -0.0004)						
Physical Activity (PA; quartiles)[a]								
PA (0 – 25.00) (REF)			–	–				
PA (26.67 – 106.7)			-0.1007 (0.0843)	(-0.2679, 0.0664)				
PA (108.0 – 241.3)			-0.2705 (0.0804)	(-0.4299, -0.1111)				
PA (241.7 – 800.0)			-0.4634 (0.0813)	(-0.6245, -0.3023)				
Smoking Status (lifetime)								
Never Smoker (REF)					–	–		
Past Smoker					0.0752 (0.0680)	(-0.0594, 0.2099)		
Current Smoker					0.2088 (0.1080)	(-0.0052, 0.4227)		
Alcohol Use (past month)								
Abstainer (REF)							–	–
Light/Moderate							-0.2223 (0.0668)	(-0.3546, -0.0900)
Heavy							-0.3122 (0.1006)	(-0.5115, -0.1128)
Interactions								
SIM x PA (continuous)[a]	0.0001 (0.0002)	(-0.0002, 0.0004)						
PA (quartiles)[a]								
SIM x PA (0 – 25.00) (REF)			–	–				
SIM x PA (26.67 – 106.7)			-0.0243 (0.0919)	(-0.2063, 0.1578)				
SIM x PA (108.0 – 241.3)			-0.0311 (0.0877)	(-0.2050, 0.1428)				
SIM x PA (241.7 – 800.0)			(-0.0040, 0.0933)	(-0.1889, 0.1809)				
Smoking Status (lifetime)								
SIM x Never Smoker (REF)					–	–		
SIM x Past Smoker					-0.0967 (0.0699)	(-0.2351, 0.0417)		
SIM x Current Smoker					-0.1286 (0.0974)	(-0.3215, 0.0643)		
Alcohol Use (past month)								
SIM x Abstainer (REF)							–	–
SIM x Light/Moderate							-0.0859 (0.0699)	(-0.2245, 0.0527)
SIM x Heavy							-0.1019 (0.0962)	(-0.2925, 0.0887)

[a]Physical Activity is measured as an average number of minutes of physical activity per week

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.8: Examining, simultaneously, the moderating role of the sociodemographic characteristics with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Sociodemographic Characteristics	
	Estimate (SE)	**95% CI**
Main Effects		
Summary Index Measure (SIM)	0.1826 (0.1063)	(-0.0283, 0.3935)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.2889 (0.0900)	(0.1103, 0.4674)
Ages 55-62	0.8194 (0.0909)	(0.6390, 0.9998)
Ages 63-84	1.042 (0.1014)	(0.8410, 1.243)
Gender		
Female (REF)	–	–
Male	0.0185 (0.0642)	(-0.1089, 0.1460)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.0539 (0.1010)	(-0.1466, 0.2543)
Non-Hispanic Other	0.0934 (0.1829)	(-0.2695, 0.4562)
Hispanic	0.0113 (0.1556)	(-0.2976, 0.3201)
Income Ratio (continuous)[a]	0.0006 (0.0092)	(-0.0176, 0.0188)
Educational Attainment		
<HS Diploma/GED (REF)	–	–
Some College/AA	-0.0599 (0.0815)	(-0.2216, 0.1019)
BA/BS+	-0.2749 (0.0829)	(-0.4393, -0.1105)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	0.1009 (0.1254)	(-0.1479, 0.3498)
Widowed	0.3780 (0.1512)	(0.0779, 0.6781)
Never Married	0.2689 (0.1505)	(-0.0298, 0.5675)
Interactions		
Age (years; quartiles)		

SIM x Ages 34-45 (REF)	–	–
SIM x Ages 46-54	-0.0057 (0.0980)	(-0.2002, 0.1889)
SIM x Ages 55-62	-0.2600 (0.1020)	**(-0.4623, -0.0577)***
SIM x Ages 63-84	-0.1634 (0.1118)	(-0.3852, 0.0584)
Gender		
SIM x Female (REF)	–	–
SIM x Male	-0.0698 (0.0684)	(-0.2054, 0.0659)
Race/Ethnicity		
SIM x Non-Hispanic White (REF)	–	–
SIM x Non-Hispanic Black	0.1155 (0.0889)	(-0.0608, 0.2919)
SIM x Non-Hispanic Other	-0.2439 (0.1391)	(-0.5199, 0.0321)
SIM x Hispanic	-0.3443 (0.1622)	**(-0.6662, -0.0224)***
SIM x Income Ratio (continuous)[a]	0.0129 (0.0100)	(-0.0068, 0.0327)
Educational Attainment		
SIM x <HS Diploma/GED (REF)	–	–
SIM x Some College/AA	-0.0301 (0.0809)	(-0.1907, 0.1305)
SIM x BA/BS+	-0.0401 (0.0817)	(-0.2021, 0.1219)
Marital Status		
SIM x Married; Living w/Someone (REF)	–	–
SIM x Separated; Divorced	0.0438 (0.0947)	(-0.1442, 0.2317)
SIM x Widowed	0.1710 (0.1145)	(-0.0561, 0.3981)
SIM x Never Married	-0.1449 (0.1203)	(-0.3837, 0.0939)

*p<0.05; **p<0.01; ***p<0.001

[a]Income is measured as the family-adjusted poverty to income ratio

Model adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.9: Examining, simultaneously, the moderating role of the health behavior characteristics with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Health Behavior Characteristics	
	Estimate (SE)	**95% CI**
Main Effects		
Summary Index Measure (SIM)	0.2160 (0.0684)	(0.0806, 0.3515)
Physical Activity (continuous)[a]	-0.0007 (0.0001)	(-0.0010, -0.0004)
Smoking Status (lifetime)		
Never Smoker (REF)	–	–
Past Smoker	0.0723 (0.0677)	(-0.0618, 0.2064)
Current Smoker	0.2045 (0.1088)	(-0.0113, 0.4202)
Alcohol Use (past month)		
Abstainer (REF)	–	–
Light/Moderate	-0.2222 (0.0666)	(-0.3542, -0.0902)
Heavy	-0.3132 (0.1002)	(-0.5118, -0.1147)
Interactions		
SIM x Physical Activity (continuous)[a]	0.0001 (0.0002)	(-0.0002, 0.0004)
Smoking Status (lifetime)		
SIM x Never Smoker (REF)	–	–
SIM x Past Smoker	-0.0871 (0.0700)	(-0.2259, 0.0517)
SIM x Current Smoker	-0.1206 (0.1005)	(-0.3198, 0.0785)
Alcohol Use (past month)		
SIM x Abstainer (REF)	–	–
SIM x Light/Moderate	-0.0772 (0.0698)	(-0.2155, 0.0612)
SIM x Heavy	-0.0751 (0.0970)	(-0.2673, 0.1171)

[a]Physical Activity is measured as an average number of minutes of physical activity per week

Model adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.10: Examining, simultaneously, the moderating role of the sociodemographic and health behavior characteristics with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Sociodemographic and Heath Behavior Characteristics	
	Estimate (SE)	**95% CI**
Main Effects		
Summary Index Measure (SIM)	0.2381 (0.1219)	(-0.0040, 0.4802)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.2906 (0.0897)	(0.1125, 0.4688)
Ages 55-62	0.8154 (0.0908)	(0.6352, 0.9956)
Ages 63-84	1.042 (0.1015)	(0.8401, 1.243)
Gender		
Female (REF)	–	–
Male	0.0179 (0.0642)	(-0.1095, 0.1453)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.0433 (0.1007)	(-0.1568, 0.2433)
Non-Hispanic Other	0.0961 (0.1841)	(-0.2694, 0.4617)
Hispanic	-0.0043 (0.1551)	(-0.3123, 0.3036)
Income Ratio (continuous)[a]	0.0004 (0.0091)	(-0.0178, 0.0185)
Educational Attainment		
<HS Diploma/GED (REF)	–	–
Some College/AA	-0.0679 (0.0811)	(-0.2288, 0.0931)
BA/BS+	-0.2820 (0.0821)	(-0.4449, -0.1191)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	0.1020 (0.1252)	(-0.1465, 0.3505)
Widowed	0.3854 (0.1523)	(0.0831, 0.6878)
Never Married	0.2690 (0.1506)	(-0.0300, 0.5679)
Physical Activity (continuous)[b]	-0.0007 (0.0001)	(-0.0010, -0.0004)
Smoking Status (lifetime)		
Never Smoker (REF)	–	–
Past Smoker	0.0758 (0.0676)	(-0.0585, 0.2101)
Current Smoker	0.2010 (0.1084)	(-0.0143, 0.4163)
Alcohol Use (past month)		
Abstainer (REF)	–	–
Light/Moderate	-0.2785 (0.0664)	(-0.4104, -0.1467)
Heavy	-0.3628 (0.1000)	(-0.5613, -0.1644)
Interactions		
Age (years; quartiles)		
SIM x Ages 34-45 (REF)	–	–
SIM x Ages 46-54	-0.0080 (0.0961)	(-0.1989, 0.1828)
SIM x Ages 55-62	-0.2524 (0.1007)	**(-0.4524, -0.0524)***

SIM x Ages 63-84	-0.1571 (0.1141)	(-0.3836, 0.0695)
Gender		
SIM x Female (REF)	–	–
SIM x Male	-0.0612 (0.0727)	(-0.2056, 0.0832)
Race/Ethnicity		
SIM x Non-Hispanic White (REF)	–	–
SIM x Non-Hispanic Black	0.1392 (0.0914)	(-0.0423, 0.3208)
SIM x Non-Hispanic Other	-0.2306 (0.1362)	(-0.5009, 0.0397)
SIM x Hispanic	-0.3103 (0.1601)	(-0.6283, 0.0076)
SIM x Income Ratio (continuous)[a]	0.0127 (0.0098)	(-0.0068, 0.0321)
Educational Attainment		
SIM x <HS Diploma/GED (REF)	–	–
SIM x Some College/AA	-0.0355 (0.0806)	(-0.1955, 0.1246)
SIM x BA/BS+	-0.0466 (0.0827)	(-0.2107, 0.1176)
Marital Status		
SIM x Married; Living w/Someone (REF)	–	–
SIM x Separated; Divorced	0.0471 (0.0937)	(-0.1389, 0.2331)
SIM x Widowed	0.1722 (0.1157)	(-0.0575, 0.4020)
SIM x Never Married	-0.1391 (0.1206)	(-0.3786, 0.1004)
SIM x Physical Activity (continuous)[b]	0.0001 (0.0002)	(-0.0002, 0.0004)
Smoking Status (lifetime)		
SIM x Never Smoker (REF)	–	–
SIM x Past Smoker	-0.0884 (0.0739)	(-0.2352, 0.0583)
SIM x Current Smoker	-0.1295 (0.1028)	(-0.3336, 0.0746)
Alcohol Use (past month)		
SIM x Abstainer (REF)	–	–
SIM x Light/Moderate	-0.0548 (0.0718)	(-0.1974, 0.0877)
SIM x Heavy	-0.0146 (0.1019)	(-0.2168, 0.1877)

*p<0.05; **p<0.01; ***p<0.001

[a]Income is measured as the family-adjusted poverty to income ratio

[b]Physical Activity is measured as an average number of minutes of physical activity per week

Model adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.11: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Summary Index Measure (SIM)	0.1921 (0.0784)	(0.0366, 0.3477)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.2977 (0.0902)	(0.1188, 0.4766)
Ages 55-62	0.8288 (0.0905)	(0.6493, 1.008)
Ages 63-84	1.060 (0.1003)	(0.8613, 1.259)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.0516 (0.1012)	(-0.1491, 0.2523)
Non-Hispanic Other	0.0876 (0.1839)	(-0.2772, 0.4525)
Hispanic	0.0049 (0.1547)	(-0.3018, 0.3116)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	0.1016 (0.1267)	(-0.1498, 0.3529)
Widowed	0.3699 (0.1519)	(0.0686, 0.6711)
Never Married	0.2718 (0.1515)	(-0.0287, 0.5722)
Interactions		
Age (years; quartiles)		
SIM x Ages 34-45 (REF)	–	–
SIM x Ages 46-54	-0.0049 (0.0977)	(-0.1988, 0.1889)
SIM x Ages 55-62	-0.2544 (0.1021)	**(-0.4570, -0.0519)***
SIM x Ages 63-84	-0.1729 (0.1104)	(-0.3919, 0.0461)
Race/Ethnicity		
SIM x Non-Hispanic White (REF)	–	–
SIM x Non-Hispanic Black	0.1078 (0.0872)	(-0.0651, 0.2808)
SIM x Non-Hispanic Other	-0.2306 (0.1421)	(-0.5125, 0.0513)
SIM x Hispanic	-0.3408 (0.1680)	**(-0.6739, -0.0077)***
Marital Status		
SIM x Married; Living w/Someone (REF)	–	–
SIM x Separated; Divorced	0.0438 (0.0933)	(-0.1412, 0.2288)
SIM x Widowed	0.1757 (0.1107)	(-0.0439, 0.3953)
SIM x Never Married	-0.1543 (0.1196)	(-0.3915, 0.0829)

*p<0.05; **p<0.01; ***p<0.001

Model adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.12: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, psychological work stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Psychological Work Stress (PsWS)	0.0734 (0.0842)	(-0.0934, 0.2402)	-0.0078 (0.0579)	(-0.1224,0.1068)	0.0251 (0.0631)	(-0.0998, 0.1500)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.3350 (0.1150)	(0.1070, 0.5629)				
Ages 55-62	0.8551 (0.1019)	(0.6533, 1.057)				
Ages 63-84	1.007 (0.1007)	(0.8072, 1.206)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			01325 (0.0998)	(-0.0653, 0.3303)		
Non-Hispanic Other			0.0125 (0.1819)	(-0.3479, 0.3729)		
Hispanic			0.1561 (0.1653)	(-0.1714, 0.4836)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0336 (0.0893)	(-0.2106, 0.1433)
Widowed					0.0491 (0.1175)	(-0.1837, 0.2820)
Never Married					0.1698 (0.1339)	(-0.0954, 0.4350)
Interactions						
Age (years; quartiles)						
PsWS x Ages 34-45 (REF)	–	–				
PsWS x Ages 46-54	-0.0620 (0.1243)	(-0.3082, 0.1842)				
PsWS x Ages 55-62	-0.2262 (0.1067)	**(-0.4376, -0.0148)***				
PsWS x Ages 63-84	-0.0879 (0.1121)	(-0.3101, 0.1344)				
Race/Ethnicity						
PsWS x Non-Hispanic White (REF)			–	–		
PsWS x Non-Hispanic Black			0.1487 (0.0944)	(-0.0383, 0.3358)		
PsWS x Non-Hispanic Other			0.2811 (0.2057)	(-0.1264, 0.6886)		
PsWS x Hispanic			-0.5051 (0.1922)	**(-0.8859, -0.1243)****		
Marital Status						
PsWS x Married; Living w/Someone (REF)					–	–
PsWS x Separated; Divorced					0.0309 (0.0975)	(-0.1622, 0.2241)
PsWS x Widowed					-0.0818 (0.1312)	(-0.3417, 0.1780)
PsWS x Never Married					-0.1431 (0.1272)	(-0.3951, 0.1088)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.13: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, psychological work stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Psychological Work Stress (PsWS)	0.0939 (0.0922)	(-0.0889, 0.2766)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.3628 (0.1128)	(0.1392, 0.5864)
Ages 55-62	0.8710 (0.1034)	(0.6660, 1.076)
Ages 63-84	1.031 (0.1018)	(0.8294, 1.233)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.0548 (0.1021)	(-0.1476, 0.2573)
Non-Hispanic Other	-0.0311 (0.1740)	(-0.3761, 0.3139)
Hispanic	0.1355 (0.1684)	(-0.1985, 0.4694)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	0.0104 (0.0921)	(-0.1723, 0.1931)
Widowed	0.1538 (0.1178)	(-0.0798, 0.3873)
Never Married	0.2303 (0.1367)	(-0.0408, 0.5014)
Interactions		
Age (years; quartiles)		
PsWS x Ages 34-45 (REF)	–	–
PsWS x Ages 46-54	-0.0901 (0.1231)	(-0.3342, 0.1540)
PsWS x Ages 55-62	-0.2553 (0.1095)	**(-0.4725, -0.0382)***
PsWS x Ages 63-84	-0.0912 (0.1150)	(-0.3182, 0.1378)
Race/Ethnicity		
PsWS x Non-Hispanic White (REF)	–	–
PsWS x Non-Hispanic Black	0.2358 (0.1013)	**(0.0350, 0.4366)***
PsWS x Non-Hispanic Other	0.2808 (0.1971)	(-0.1099, 0.6715)
PsWS x Hispanic	-0.5036 (0.1992)	**(-0.8985, -0.1087)***
Marital Status		
PsWS x Married; Living w/Someone (REF)	–	–
PsWS x Separated; Divorced	-0.0021 (0.1025)	(-0.2054, 0.2011)
PsWS x Widowed	-0.1522 (0.1334)	(-0.4166, 0.1122)
PsWS x Never Married	-0.2557 (0.1358)	(-0.5249, 0.0135)

*p<0.05; **p<0.01; ***p<0.001

Model adjusted for data collection site + current employment status + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.14: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, physical work stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Physical Work Stress (PhWS)	0.0504 (0.0553)	(-0.0591, 0.1599)	0.0472 (0.0386)	(-0.0294, 0.1237)	0.0558 (0.0406)	(-0.0246, 0.1361)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.2795 (0.0852)	(0.1106, 0.4484)				
Ages 55-62	0.7826 (0.0897)	(0.6049, 0.9603)				
Ages 63-84	0.9558 (0.0967)	(0.7641, 1.148)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.1733 (0.0972)	(-0.0192, 0.3658)		
Non-Hispanic Other			0.0853 (0.1781)	(-0.2676, 0.4381)		
Hispanic			-0.0226 (0.1578)	(-0.3353, 0.2900)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0183 (0.0826)	(-0.1820, 0.1454)
Widowed					0.0904 (0.1228)	(-0.1528, 0.3337)
Never Married					0.1032 (0.1019)	(-0.0986, 0.3051)
Interactions						
Age (years; quartiles)						
PhWS x Ages 34-45 (REF)	–	–				
PhWS x Ages 46-54	0.1270 (0.0812)	(-0.0339, 0.2880)				
PhWS x Ages 55-62	-0.1728 (0.0943)	(-0.3596, 0.0141)				
PhWS x Ages 63-84	-0.1245 (0.0888)	(-0.3006, 0.0515)				
Race/Ethnicity						
PhWS x Non-Hispanic White (REF)			–	–		
PhWS x Non-Hispanic Black			0.0535 (0.0735)	(-0.0922, 0.1992)		
PhWS x Non-Hispanic Other			-0.2824 (0.1828)	(-0.6446, 0.0798)		
PhWS x Hispanic			-0.1426 (0.1660)	(-0.4713, 0.1862)		
Marital Status						
PhWS x Married; Living w/Someone (REF)					–	–
PhWS x Separated; Divorced					-0.0670 (0.0814)	(-0.2283, 0.0943)
PhWS x Widowed					0.0897 (0.1107)	(-0.1297, 0.3090)
PhWS x Never Married					-0.0368 (0.0891)	(-0.2134, 0.1398)

All models adjusted for data collection site + current employment status + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.15: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, physical work stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Physical Work Stress (PhWS)	0.0844 (0.0661)	(-0.0467, 0.2154)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.2771 (0.0854)	(0.1078, 0.4464)
Ages 55-62	0.7748 (0.0898)	(0.5967, 0.9529)
Ages 63-84	0.9454 (0.0968)	(0.7536, 1.137)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.0974 (0.0963)	(-0.0935, 0.2882)
Non-Hispanic Other	0.0576 (0.1712)	(-0.2819, 0.3971)
Hispanic	-0.1030 (0.1562)	(-0.4127, 0.2066)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	0.0055 (0.0838)	(-0.1608, 0.1717)
Widowed	0.2000 (0.1264)	(-0.0505, 0.4506)
Never Married	0.1023 (0.1009)	(-0.0977, 0.3023)
Interactions		
Age (years; quartiles)		
PhWS x Ages 34-45 (REF)	–	–
PhWS x Ages 46-54	0.1275 (0.0832)	(-0.0375, 0.2926)
PhWS x Ages 55-62	-0.2089 (0.0986)	**(-0.4044, -0.0134)***
PhWS x Ages 63-84	-0.1669 (0.0927)	(-0.3506, 0.0169)
Race/Ethnicity		
PhWS x Non-Hispanic White (REF)	–	–
PhWS x Non-Hispanic Black	0.0983 (0.0793)	(-0.0590, 0.2555)
PhWS x Non-Hispanic Other	-0.3066 (0.1791)	(-0.6616, 0.0485)
PhWS x Hispanic	-0.1809 (0.1629)	(-0.5040, 0.1421)
Marital Status		
PhWS x Married; Living w/Someone (REF)	–	–
PhWS x Separated; Divorced	-0.1073 (0.0837)	(-0.2733, 0.0588)
PhWS x Widowed	0.1052 (0.1201)	(-0.1330, 0.3433)
PhWS x Never Married	-0.0978 (0.1006)	(-0.2971, 0.1016)

*p<0.05; **p<0.01; ***p<0.001

Model adjusted for data collection site + current employment status + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.16: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, work-family spillover stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Work-Family Spillover Stress (WFSS)	-0.0142 (0.0565)	(-0.1261, 0.0978)	-0.0344 (0.0479)	(-0.1292, 0.0605)	-0.0129 (0.0495)	(-0.1109, 0.0851)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.3018 (0.0982)	(0.1072, 0.4963)				
Ages 55-62	0.7637 (0.0945)	(0.5764, 0.9510)				
Ages 63-84	0.9479 (0.0992)	(0.7514, 1.145)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.1811 (0.0967)	(-0.0104, 0.3726)		
Non-Hispanic Other			0.0467 (0.1867)	(-0.3232, 0.4166)		
Hispanic			0.0572 (0.1570)	(-0.2539, 0.3683)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0214 (0.0846)	(-0.1890, 0.1463)
Widowed					0.0704 (0.1170)	(-0.1614, 0.3022)
Never Married					0.1043 (0.1070)	(-0.1076, 0.3163)
Interactions						
Age (years; quartiles)						
WFSS x Ages 34-45 (REF)	–	–				
WFSS x Ages 46-54	-0.0022 (0.0991)	(-0.1986, 0.1941)				
WFSS x Ages 55-62	-0.0933 (0.0854)	(-0.2625, 0.0759)				
WFSS x Ages 63-84	-0.0302 (0.0954)	(-0.2192, 0.1589)				
Race/Ethnicity						
WFSS x Non-Hispanic White (REF)			–	–		
WFSS x Non-Hispanic Black			0.0653 (0.0727)	(-0.0787, 0.2094)		
WFSS x Non-Hispanic Other			0.1333 (0.1468)	(-0.1576, 0.4242)		
WFSS x Hispanic			-0.2388 (0.1241)	(-0.4845, 0.0070)		
Marital Status						
WFSS x Married; Living w/Someone (REF)					–	–
WFSS x Separated; Divorced					-0.0509 (0.0814)	(-0.2122, 0.1104)
WFSS x Widowed					0.0197 (0.0986)	(-0.1756, 0.2150)
WFSS x Never Married					-0.0255 (0.0981)	(-0.2198, 0.1688)

All models adjusted for data collection site + current employment status + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.17: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, work-family spillover stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Work-Family Spillover Stress (WFSS)	-0.0122 (0.0682)	(-0.1473, 0.1229)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.3138 (0.0974)	(0.1207, 0.5070)
Ages 55-62	0.7683 (0.0950)	(0.5799, 0.9567)
Ages 63-84	0.9526 (0.0998)	(0.7546, 1.151)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.1186 (0.0974)	(-0.0745, 0.3116)
Non-Hispanic Other	0.0080 (0.1809)	(-0.3506, 0.3666)
Hispanic	0.0205 (0.1611)	(-0.2988, 0.3399)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	0.0043 (0.0872)	(-0.1685, 0.1772)
Widowed	0.1654 (0.1174)	(-0.0674, 0.3982)
Never Married	0.1069 (0.1092)	(-0.1096, 0.3235)
Interactions		
Age (years; quartiles)		
WFSS x Ages 34-45 (REF)	–	–
WFSS x Ages 46-54	-0.0078 (0.1006)	(-0.2072, 0.1917)
WFSS x Ages 55-62	-0.1016 (0.0894)	(-0.2787, 0.0756)
WFSS x Ages 63-84	-0.0280 (0.0993)	(-0.2249, 0.1689)
Race/Ethnicity		
WFSS x Non-Hispanic White (REF)	–	–
WFSS x Non-Hispanic Black	0.1213 (0.0843)	(-0.0458, 0.2884)
WFSS x Non-Hispanic Other	0.1340 (0.1390)	(-0.1417, 0.4097)
WFSS x Hispanic	-0.2393 (0.1244)	(-0.4860, 0.0074)
Marital Status		
WFSS x Married; Living w/Someone (REF)	–	–
WFSS x Separated; Divorced	-0.0685 (0.0886)	(-0.2441, 0.1071)
WFSS x Widowed	-0.0321 (0.1074)	(-0.2451, 0.1808)
WFSS x Never Married	-0.0810 (0.1080)	(-0.2952, 0.1331)

Model adjusted for data collection site + current employment status + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.18: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, perceived inequality, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Perceived Inequality (PI)	0.1212 (0.0728)	(-0.0231, 0.2654)	0.0883 (0.0453)	(-0.0015, 0.1780)	0.0375 (0.0510)	(-0.0636, 0.1385)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.2967 (0.0828)	(0.1326, 0.4608)				
Ages 55-62	0.7471 (0.0930)	(0.5627, 0.9314)				
Ages 63-84	0.9698 (0.0966)	(0.7783, 1.161)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.1783 (0.0978)	(-0.0155, 0.3721)		
Non-Hispanic Other			0.0681 (0.1843)	(-0.2971, 0.4333)		
Hispanic			-0.0603 (0.1763)	(-0.4097, 0.2890)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0666 (0.0838)	(-0.2326, 0.0993)
Widowed					0.0928 (0.1168)	(-0.1387, 0.3244)
Never Married					0.0511 (0.1104)	(-0.1677, 0.2699)
Interactions						
Age (years; quartiles)						
PI x Ages 34-45 (REF)	–	–				
PI x Ages 46-54	-0.0017 (0.0918)	(-0.1836, 0.1801)				
PI x Ages 55-62	-0.1305 (0.1134)	(-0.3552, 0.0942)				
PI x Ages 63-84	-0.0742 (0.1103)	(-0.2928, 0.1443)				
Race/Ethnicity						
PI x Non-Hispanic White (REF)			–	–		
PI x Non-Hispanic Black			-0.0162 (0.0948)	(-0.2039, 0.1716)		
PI x Non-Hispanic Other			0.1091 (0.1554)	(-0.1989, 0.4170)		
PI x Hispanic			-0.1836 (0.2221)	(-0.6237, 0.2566)		
Marital Status						
PI x Married; Living w/Someone (REF)					–	–
PI x Separated; Divorced					0.1443 (0.0906)	(-0.0353, 0.3238)
PI x Widowed					0.2037 (0.1430)	(-0.0795, 0.4870)
PI x Never Married					-0.0046 (0.1050)	(-0.2127, 0.2034)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.19: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, perceived inequality, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Perceived Inequality (PI)	0.1123 (0.0796)	(-0.0455, 0.2701)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.2971 (0.0833)	(0.1320. 0.4622)
Ages 55-62	0.7503 (0.0940)	(0.5639, 0.9366)
Ages 63-84	0.9607 (0.0982)	(0.7661, 1.155)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.1365 (0.0982)	(-0.0583, 0.3312)
Non-Hispanic Other	0.0236 (0.1848)	(-0.3428, 0.3900)
Hispanic	-0.1165 (0.1785)	(-0.4704, 0.2374)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	-0.0473 (0.0851)	(-0.2160, 0.1214)
Widowed	0.1812 (0.1174)	(-0.0516, 0.4139)
Never Married	0.0281 (0.1109)	(-0.1919, 0.2481)
Interactions		
Age (years; quartiles)		
PI x Ages 34-45 (REF)	–	–
PI x Ages 46-54	-0.0301 (0.0945)	(-0.2175, 0.1574)
PI x Ages 55-62	-0.1529 (0.1141)	(-0.3791, 0.0733)
PI x Ages 63-84	-0.1299 (0.1128)	(-0.3535, 0.0938)
Race/Ethnicity		
PI x Non-Hispanic White (REF)	–	–
PI x Non-Hispanic Black	-0.0719 (0.0966)	(-0.2635, 0.1198)
PI x Non-Hispanic Other	0.0198 (0.1500)	(-0.2776, 0.3172)
PI x Hispanic	-0.2469 (0.2273)	(-0.6976, 0.2039)
Marital Status		
PI x Married; Living w/Someone (REF)	–	–
PI x Separated; Divorced	0.1758 (0.0908)	(-0.0042, 0.3557)
PI x Widowed	0.2181 (0.1497)	(-0.0787, 0.5150)
PI x Never Married	0.0024 (0.1154)	(-0.2264, 0.2312)

Model adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.20: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, relationship stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Relationship Stress (RS)	0.0669 (0.0614)	(-0.0548, 0.1886)	0.0774 (0.0378)	(0.0025, 0.1523)	0.0502 (0.0402)	(-0.0294, 0.1297)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.3080 (0.0859)	(0.1377, 0.4783)				
Ages 55-62	0.8054 (0.0913)	(0.6244, 0.9864)				
Ages 63-84	1.053 (0.0936)	(0.8677, 1.239)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.2053 (0.0976)	(0.0119, 0.3986)		
Non-Hispanic Other			0.1210 (0.1832)	(-0.2418, 0.4839)		
Hispanic			-0.0434 (0.1629)	(-0.3661, 0.2793)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					0.1259 (0.1182)	(-0.1082, 0.3600)
Widowed					0.4530 (0.1606)	(0.1349, 0.7712)
Never Married					0.2973 (0.1442)	(0.0117, 0.5830)
Interactions						
Age (years; quartiles)						
RS x Ages 34-45 (REF)	–	–				
RS x Ages 46-54	0.0205 (0.0852)	(-0.1482, 0.1893)				
RS x Ages 55-62	-0.0145 (0.0934)	(-0.1995, 0.1705)				
RS x Ages 63-84	-0.1035 (0.0948)	(-0.2914, 0.0844)				
Race/Ethnicity						
RS x Non-Hispanic White (REF)			–	–		
RS x Non-Hispanic Black			-0.0031 (0.0911)	(-0.1835, 0.1774)		
RS x Non-Hispanic Other			-0.3086 (0.1420)	**(-0.5899, -0.0274)***		
RS x Hispanic			-0.1316 (0.1700)	(-0.4683, 0.2052)		
Marital Status						
RS x Married; Living w/Someone (REF)					–	–
RS x Separated; Divorced					-0.0372 (0.0894)	(-0.2143, 0.1399)
RS x Widowed					0.3457 (0.1117)	**(0.1244, 0.5670)****
RS x Never Married					-0.0059 (0.1234)	(-0.2503, 0.2385)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.21: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, relationship stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Relationship Stress (RS)	0.0857 (0.0667)	(-0.0466, 0.2179)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.3183 (0.0861)	(0.1475, 0.4891)
Ages 55-62	0.8045 (0.0918)	(0.6225, 0.9865)
Ages 63-84	1.063 (0.0934)	(0.8780, 1.248)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.1492 (0.0983)	(-0.0458, 0.3442)
Non-Hispanic Other	0.1037 (0.1808)	(-0.2547, 0.4622)
Hispanic	-0.0934 (0.1637)	(-0.4179, 0.2311)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	0.1451 (0.1175)	(-0.0879, 0.3781)
Widowed	0.5315 (0.1657)	(0.2030, 0.8601)
Never Married	0.2878 (0.1446)	(0.0011, 0.5745)
Interactions		
Age (years; quartiles)		
RS x Ages 34-45 (REF)	–	–
RS x Ages 46-54	0.0225 (0.0870)	(-0.1501, 0.1950)
RS x Ages 55-62	-0.0500 (0.0950)	(-0.2384, 0.1384)
RS x Ages 63-84	-0.1581 (0.0957)	(-0.3479, 0.0318)
Race/Ethnicity		
RS x Non-Hispanic White (REF)	–	–
RS x Non-Hispanic Black	-0.0062 (0.0970)	(-0.1985, 0.1860)
RS x Non-Hispanic Other	-0.3094 (0.1397)	**(-0.5864, -0.0325)***
RS x Hispanic	-0.1394 (0.1666)	(-0.4698, 0.1910)
Marital Status		
RS x Married; Living w/Someone (REF)	–	–
RS x Separated; Divorced	-0.0203 (0.0904)	(-0.1996, 0.1591)
RS x Widowed	0.3577 (0.1251)	**(0.1096, 0.6057)****
RS x Never Married	0.0029 (0.1344)	(-0.2636, 0.2693)

*p<0.05; **p<0.01; ***p<0.001

Model adjusted for data collection site + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.22: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, neighborhood stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Neighborhood Stress (NS)	0.1972 (0.0820)	(0.0348, 0.3596)	0.0646 (0.0537)	(-0.0417, 0.1709)	0.0161 (0.0588)	(-0.1004, 0.1325)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.2976 (0.0846)	(0.1299, 0.4652)				
Ages 55-62	0.7474 (0.0926)	(0.5640, 0.9308)				
Ages 63-84	0.9875 (0.0988)	(0.7918, 1.183)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.1924 (0.0990)	(-0.0037, 0.3886)		
Non-Hispanic Other			0.0989 (0.1742)	(-0.2461, 0.4439)		
Hispanic			-0.0483 (0.1602)	(-0.3657, 0.2691)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0461 (0.0832)	(-0.2109, 0.1188)
Widowed					0.0807 (0.1191)	(-0.1552, 0.3166)
Never Married					0.1026 (0.1015)	(-0.0984, 0.3037)
Interactions						
Age (years; quartiles)						
NS x Ages 34-45 (REF)	–	–				
NS x Ages 46-54	-0.0817 (0.1141)	(-0.3078, 0.1443)				
NS x Ages 55-62	-0.2610 (0.1175)	**(-0.4939, -0.0281)***				
NS x Ages 63-84	-0.2955 (0.1252)	**(-0.5435, -0.0475)***				
Race/Ethnicity						
NS x Non-Hispanic White (REF)			–	–		
NS x Non-Hispanic Black			-0.0776 (0.1143)	(-0.3041, 0.1489)		
NS x Non-Hispanic Other			0.4381 (0.2374)	(-0.0322, 0.9084)		
NS x Hispanic			-0.0918 (0.1624)	(-0.4136, 0.2300)		
Marital Status						
NS x Married; Living w/Someone (REF)					–	–
NS x Separated; Divorced					0.1768 (0.1115)	(-0.0441, 0.3976)
NS x Widowed					0.1336 (0.1330)	(-0.1298, 0.3971)
NS x Never Married					-0.0208 (0.1296)	(-0.2775, 0.2360)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.23: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, neighborhood stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Neighborhood Stress (NS)	0.2138 (0.0959)	(0.0236, 0.4041)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.2824 (0.0841)	(0.1157, 0.4491)
Ages 55-62	0.7253 (0.0935)	(0.5400, 0.9106)
Ages 63-84	0.9498 (0.1000)	(0.7515, 1.148)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.1366 (0.0992)	(-0.0601, 0.3334)
Non-Hispanic Other	0.0469 (0.1738)	(-0.2975, 0.3914)
Hispanic	-0.1196 (0.1639)	(-0.4445, 0.2053)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	-0.0084 (0.0836)	(-0.1740, 0.1573)
Widowed	0.2304 (0.1231)	(-0.0137, 0.4745)
Never Married	0.0554 (0.1012)	(-0.1452, 0.2559)
Interactions		
Age (years; quartiles)		
NS x Ages 34-45 (REF)	–	–
NS x Ages 46-54	-0.1244 (0.1167)	(-0.3558, 0.1071)
NS x Ages 55-62	-0.3303 (0.1220)	**(-0.5721, -0.0885)****
NS x Ages 63-84	-0.4319 (0.1369)	**(-0.7033, -0.1606)****
Race/Ethnicity		
NS x Non-Hispanic White (REF)	–	–
NS x Non-Hispanic Black	-0.1688 (0.1187)	(-0.4041, 0.0664)
NS x Non-Hispanic Other	0.3223 (0.2364)	(-0.1463, 0.7909)
NS x Hispanic	-0.1079 (0.1707)	(-0.4462, 0.2304)
Marital Status		
NS x Married; Living w/Someone (REF)	–	–
NS x Separated; Divorced	0.2198 (0.1143)	(-0.0069, 0.4464)
NS x Widowed	0.3881 (0.1519)	**(0.0870, 0.6892)***
NS x Never Married	-0.0359 (0.1389)	(-0.3113, 0.2395)

*p<0.05; **p<0.01; ***p<0.001

Model adjusted for data collection site + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.24: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, discrimination, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Discrimination (DI)	0.2105 (0.0614)	(0.0888, 0.3323)	0.1246 (0.0431)	(0.0392, 0.2099)	0.1286 (0.0424)	(0.0446, 0.2126)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.3044 (0.0839)	(0.1382, 0.4705)				
Ages 55-62	0.8085 (0.0894)	(0.6313, 0.9857)				
Ages 63-84	1.015 (0.0943)	(0.8277, 1.202)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.0951 (0.1034)	(-0.1098, 0.3000)		
Non-Hispanic Other			0.0136 (0.1805)	(-0.3440, 0.3712)		
Hispanic			0.0317 (0.1586)	(-0.2825, 0.3459)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0561 (0.0847)	(-0.2240, 0.1117)
Widowed					0.0539 (0.1174)	(-0.1787, 0.2865)
Never Married					0.0779 (0.1003)	(-0.1209, 0.2766)
Interactions						
Age (years; quartiles)						
DI x Ages 34-45 (REF)	–	–				
DI x Ages 46-54	-0.0576 (0.0815)	(-0.2190, 0.1038)				
DI x Ages 55-62	-0.2131 (0.0914)	**(-0.3943, -0.0320)***				
DI x Ages 63-84	-0.1675 (0.0981)	(-0.3620, 0.0269)				
Race/Ethnicity						
DI x Non-Hispanic White (REF)			–	–		
DI x Non-Hispanic Black			0.0543 (0.0726)	(-0.0896, 0.1982)		
DI x Non-Hispanic Other			0.0615 (0.1751)	(-0.2854, 0.4084)		
DI x Hispanic			-0.2811 (0.1463)	(-0.5710, 0.0088)		
Marital Status						
DI x Married; Living w/Someone (REF)					–	–
DI x Separated; Divorced					0.0054 (0.0768)	(-0.1468, 0.1576)
DI x Widowed					0.0312 (0.1088)	(-0.1843, 0.2467)
DI x Never Married					-0.0007 (0.1026)	(-0.2040, 0.2026)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.25: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, discrimination, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Discrimination (DI)	0.2070 (0.0686)	(0.0709, 0.3430)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.3107 (0.0837)	(0.1447, 0.4767)
Ages 55-62	0.8091 (0.0895)	(0.6316, 0.9866)
Ages 63-84	1.013 (0.0950)	(0.8244, 1.201)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.0426 (0.1026)	(-0.1609, 0.2461)
Non-Hispanic Other	0.0034 (0.1766)	(-0.3469, 0.3537)
Hispanic	-0.0231 (0.1665)	(-0.3533, 0.3072)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	-0.0253 (0.0878)	(-0.1994, 0.1488)
Widowed	0.1462 (0.1169)	(-0.0855, 0.3779)
Never Married	0.0873 (0.1028)	(-0.1164, 0.2911)
Interactions		
Age (years; quartiles)		
DI x Ages 34-45 (REF)	–	–
DI x Ages 46-54	-0.0634 (0.0828)	(-0.2276, 0.1008)
DI x Ages 55-62	-0.2255 (0.0930)	**(-0.4099, -0.0410)***
DI x Ages 63-84	-0.1873 (0.1010)	(-0.3875, 0.0129)
Race/Ethnicity		
DI x Non-Hispanic White (REF)	–	–
DI x Non-Hispanic Black	0.0597 (0.0769)	(-0.0928, 0.2122)
DI x Non-Hispanic Other	0.0309 (0.1623)	(-0.2908, 0.3526)
DI x Hispanic	-0.2659 (0.1498)	(-0.5631, 0.0312)
Marital Status		
DI x Married; Living w/Someone (REF)	–	–
DI x Separated; Divorced	0.0234 (0.0798)	(-0.1349, 0.1816)
DI x Widowed	0.0386 (0.1141)	(-0.1876, 0.2648)
DI x Never Married	-0.0365 (0.1058)	(-0.2463, 0.1733)

*p<0.05; **p<0.01; ***p<0.001

Model adjusted for data collection site + current employment status + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.26: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, current financial stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Current Financial Stress (CFS)	0.1016 (0.0581)	(-0.0135, 0.2167)	0.1417 (0.0356)	(0.0711, 0.2123)	0.0872 (0.0389)	(0.0101, 0.1642)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.2979 (0.0823)	(0.1348, 0.4611)				
Ages 55-62	0.7900 (0.0905)	(0.6107, 0.9693)				
Ages 63-84	1.091 (0.0926)	(0.9072, 1.274)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.1670 (0.0998)	(-0.0308, 0.3647)		
Non-Hispanic Other			0.0871 (0.1862)	(-0.2818, 0.4559)		
Hispanic			-0.0406 (0.1600)	(-0.3575, 0.2764)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0816 (0.0814)	(-0.2428, 0.0796)
Widowed					0.0188 (0.1189)	(-0.2167, 0.2543)
Never Married					0.1362 (0.1009)	(-0.0637, 0.3362)
Interactions						
Age (years; quartiles)						
CFS x Ages 34-45 (REF)	–	–				
CFS x Ages 46-54	0.0574 (0.0743)	(-0.0898, 0.2045)				
CFS x Ages 55-62	-0.0725 (0.0819)	(-0.2347, 0.0898)				
CFS x Ages 63-84	-0.0105 (0.0852)	(-0.1794, 0.1584)				
Race/Ethnicity						
CFS x Non-Hispanic White (REF)			–	–		
CFS x Non-Hispanic Black			-0.0735 (0.0736)	(-0.2192, 0.0724)		
CFS x Non-Hispanic Other			-0.2105 (0.1513)	(-0.5103, 0.0893)		
CFS x Hispanic			-0.2646 (0.1505)	(-0.5627, 0.0335)		
Marital Status						
CFS x Married; Living w/Someone (REF)					–	–
CFS x Separated; Divorced					0.0957 (0.0708)	(-0.0445, 0.2359)
CFS x Widowed					0.1182 (0.1181)	(-0.1158, 0.3522)
CFS x Never Married					-0.0369 (0.0860)	(-0.2073, 0.1335)

All models adjusted for data collection site + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.27: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, current financial stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Current Financial Stress (CFS)	0.1276 (0.0613)	(0.0061, 0.2490)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.2894 (0.0829)	(0.1251, 0.4537)
Ages 55-62	0.7883 (0.0910)	(0.6080, 0.9687)
Ages 63-84	1.082 (0.0924)	(0.8990, 1.266)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.1112 (0.0997)	(-0.0864, 0.3088)
Non-Hispanic Other	0.0978 (0.1793)	(-0.2578, 0.4534)
Hispanic	-0.0889 (0.1632)	(-0.4125, 0.2348)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	-0.0657 (0.0826)	(-0.2294, 0.0980)
Widowed	0.1632 (0.1245)	(-0.0837, 0.4101)
Never Married	0.1044 (0.1005)	(-0.0948, 0.3035)
Interactions		
Age (years; quartiles)		
CFS x Ages 34-45 (REF)	–	–
CFS x Ages 46-54	0.0425 (0.0741)	(-0.1044, 0.1893)
CFS x Ages 55-62	-0.1091 (0.0837)	(-0.2750, 0.0569)
CFS x Ages 63-84	-0.0620 (0.0852)	(-0.2308, 0.1069)
Race/Ethnicity		
CFS x Non-Hispanic White (REF)	–	–
CFS x Non-Hispanic Black	-0.1010 (0.0784)	(-0.2565, 0.0545)
CFS x Non-Hispanic Other	-0.2825 (0.1432)	(-0.5663, 0.0014)
CFS x Hispanic	-0.2848 (0.1526)	(-0.5873, 0.0177)
Marital Status		
CFS x Married; Living w/Someone (REF)	–	–
CFS x Separated; Divorced	0.1287 (0.0749)	(-0.0199, 0.2772)
CFS x Widowed	0.1434 (0.1273)	(-0.1089, 0.3958)
CFS x Never Married	-0.0102 (0.0910)	(-0.1907, 0.1703)

Model adjusted for data collection site + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.28: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, past year problems in the immediate family, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Past Year Problems in the Immediate Family (PYP)	0.0148 (0.0594)	(-0.1030, 0.1326)	0.0256 (0.0376)	(-0.0488, 0.1000)	0.0280 (0.0379)	(-0.0471, 0.1031)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.3038 (0.0874)	(0.1306, 0.4771)				
Ages 55-62	0.7958 (0.0912)	(0.6152, 0.9765)				
Ages 63-84	1.077 (0.0937)	(0.8915, 1.263)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.2376 (0.0969)	(0.0456, 0.4296)		
Non-Hispanic Other			0.1745 (0.1980)	(-0.2178, 0.5667)		
Hispanic			-0.0307 (0.1604)	(-0.3486, 0.2872)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					0.1308 (0.1167)	(-0.1004, 0.3621)
Widowed					0.2709 (0.1487)	(-0.0238, 0.5655)
Never Married					0.2458 (0.1439)	(-0.0393, 0.5308)
Interactions						
Age (years; quartiles)						
PYP x Ages 34-45 (REF)	–	–				
PYP x Ages 46-54	0.0280 (0.0796)	(-0.1298, 0.1857)				
PYP x Ages 55-62	-0.0446 (0.0860)	(-0.2150, 0.1259)				
PYP x Ages 63-84	0.0801 (0.1024)	(-0.1229, 0.2830)				
Race/Ethnicity						
PYP x Non-Hispanic White (REF)			–	–		
PYP x Non-Hispanic Black			0.1415 (0.0854)	(-0.0278, 0.3108)		
PYP x Non-Hispanic Other			-0.2373 (0.1571)	(-0.5486, 0.0740)		
PYP x Hispanic			-0.0641 (0.1281)	(-0.3180, 0.1897)		
Marital Status						
PYP x Married; Living w/Someone (REF)					–	–
PYP x Separated; Divorced					0.0268 (0.0928)	(-0.1571, 0.2107)
PYP x Widowed					0.2895 (0.0960)	**(0.0992, 0.4797)****
PYP x Never Married					-0.0952 (0.1081)	(-0.3094, 0.1191)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.29: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, past year problems in the immediate family, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Past Year Problems in the Immediate Family (PYP)	0.0001 (0.0649)	(-0.1287, 0.1288)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.3107 (0.0869)	(0.1384, 0.4830)
Ages 55-62	0.7873 (0.0911)	(0.6067, 0.9680)
Ages 63-84	1.085 (0.0942)	(0.8982, 1.272)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.1959 (0.0970)	(0.0035, 0.3883)
Non-Hispanic Other	0.1485 (0.1950)	(-0.2381, 0.5351)
Hispanic	-0.0679 (0.1680)	(-0.4010, 0.2652)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	0.1538 (0.1191)	(-0.0824, 0.3900)
Widowed	0.3991 (0.1546)	(0.0925, 0.7057)
Never Married	0.2043 (0.1441)	(-0.0815, 0.4901)
Interactions		
Age (years; quartiles)		
PYP x Ages 34-45 (REF)	–	–
PYP x Ages 46-54	0.0287 (0.0795)	(-0.1290, 0.1864)
PYP x Ages 55-62	-0.0864 (0.0862)	(-0.2573, 0.0845)
PYP x Ages 63-84	0.0592 (0.1011)	(-0.1413, 0.2597)
Race/Ethnicity		
PYP x Non-Hispanic White (REF)	–	–
PYP x Non-Hispanic Black	0.2183 (0.0841)	**(0.0516, 0.3851)***
PYP x Non-Hispanic Other	-0.1815 (0.1492)	(-0.4773, 0.1143)
PYP x Hispanic	-0.0285 (0.1318)	(-0.2899, 0.2328)
Marital Status		
PYP x Married; Living w/Someone (REF)	–	–
PYP x Separated; Divorced	-0.0168 (0.0850)	(-0.1854, 0.1517)
PYP x Widowed	0.2125 (0.1066)	**(0.0012, 0.4238)***
PYP x Never Married	-0.1924 (0.1111)	(-0.4128, 0.0279)

*p<0.05; **p<0.01; ***p<0.001

Model adjusted for data collection site + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.30: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, stressful life experiences, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Stressful Life Experiences (SLE)	0.1064 (0.0636)	(-0.0197, 0.2325)	0.0780 (0.0443)	(-0.0097, 0.1656)	0.0705 (0.0485)	(-0.0254, 0.1665)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.2947 (0.0825)	(0.1313, 0.4580)				
Ages 55-62	0.7779 (0.0915)	(0.5967, 0.9591)				
Ages 63-84	1.049 (0.0912)	(0.8687, 1.230)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.0784 (0.1023)	(-0.1242, 0.2810)		
Non-Hispanic Other			0.1823 (0.2208)	(-0.2552, 0.6198)		
Hispanic			-0.0069 (0.1616)	(-0.3271, 0.3133)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0956 (0.0937)	(-0.2811, 0.0899)
Widowed					-0.0229 (0.1193)	(-0.2594, 0.2135)
Never Married					0.1156 (0.1000)	(-0.0824, 0.3136)
Interactions						
Age (years; quartiles)						
SLE x Ages 34-45 (REF)	–	–				
SLE x Ages 46-54	-0.0093 (0.0855)	(-0.1787, 0.1602)				
SLE x Ages 55-62	-0.0690 (0.0974)	(-0.2621, 0.1240)				
SLE x Ages 63-84	-0.0414 (0.1090)	(-0.2574, 0.1745)				
Race/Ethnicity						
SLE x Non-Hispanic White (REF)			–	–		
SLE x Non-Hispanic Black			0.1410 (0.0905)	(-0.0383, 0.3203)		
SLE x Non-Hispanic Other			-0.2470 (0.1764)	(-0.5965, 0.1025)		
SLE x Hispanic			-0.1941 (0.1843)	(-0.5591, 0.1709)		
Marital Status						
SLE x Married; Living w/Someone (REF)					–	–
SLE x Separated; Divorced					0.0442 (0.0917)	(-0.1375, 0.2259)
SLE x Widowed					0.3483 (0.1259)	**(0.0988, 0.5978)****
SLE x Never Married					-0.0901 (0.0994)	(-0.2870, 0.1068)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.31: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, stressful life experiences, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Stressful Life Experiences (SLE)	0.0944 (0.0715)	(-0.0474, 0.2361)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.2902 (0.0821)	(0.1274, 0.4530)
Ages 55-62	0.7663 (0.0911)	(0.5857, 0.9469)
Ages 63-84	1.068 (0.0903)	(0.8885, 1.247)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.0242 (0.1003)	(-0.1747, 0.2232)
Non-Hispanic Other	0.1531 (0.2133)	(-0.2698, 0.5760)
Hispanic	-0.0577 (0.1641)	(-0.3830, 0.2677)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	-0.0564 (0.0951)	(-0.2450, 0.1322)
Widowed	0.1103 (0.1225)	(-0.1326, 0.3531)
Never Married	0.1153 (0.0993)	(-0.0815, 0.3121)
Interactions		
Age (years; quartiles)		
SLE x Ages 34-45 (REF)	–	–
SLE x Ages 46-54	-0.0063 (0.0878)	(-0.1804, 0.1679)
SLE x Ages 55-62	-0.0942 (0.0970)	(-0.2865, 0.0982)
SLE x Ages 63-84	-0.1174 (0.1121)	(-0.3397, 0.1049)
Race/Ethnicity		
SLE x Non-Hispanic White (REF)	–	–
SLE x Non-Hispanic Black	0.1516 (0.0942)	(-0.0351, 0.3383)
SLE x Non-Hispanic Other	-0.2732 (0.1753)	(-0.6208, 0.0743)
SLE x Hispanic	-0.2083 (0.1825)	(-0.5702, 0.1535)
Marital Status		
SLE x Married; Living w/Someone (REF)	–	–
SLE x Separated; Divorced	0.0445 (0.0908)	(-0.1355, 0.2246)
SLE x Widowed	0.3772 (0.1352)	**(0.1090, 0.6453)****
SLE x Never Married	-0.1225 (0.1069)	(-0.3344, 0.0894)

*p<0.05; **p<0.01; ***p<0.001

Model adjusted for data collection site + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.32: Examining, individually, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, early life stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Age (Quartiles)		Model 2: Race/Ethnicity		Model 3: Marital Status	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Early Life Stress (ELS)	0.0747 (0.0670)	(-0.0581, 0.2074)	0.0408 (0.0399)	(-0.0382, 0.1197)	0.0359 (0.0425)	(-0.0483, 0.1201)
Age (years; quartiles)						
Ages 34-45 (REF)	–	–				
Ages 46-54	0.3038 (0.0824)	(0.1406, 0.4669)				
Ages 55-62	0.7851 (0.0895)	(0.6078, 0.9623)				
Ages 63-84	1.060 (0.0921)	(0.8776, 1.243)				
Race/Ethnicity						
Non-Hispanic White (REF)			–	–		
Non-Hispanic Black			0.2028 (0.0958)	(0.0130, 0.3926)		
Non-Hispanic Other			0.1144 (0.1949)	(-0.2717, 0.5005)		
Hispanic			-0.0398 (0.1560)	(-0.3487, 0.2692)		
Marital Status						
Married; Living w/Someone (REF)					–	–
Separated; Divorced					-0.0550 (0.0832)	(-0.2198, 0.1098)
Widowed					0.0832 (0.1189)	(-0.1524, 0.3188)
Never Married					0.0990 (0.0999)	(-0.0990, 0.2969)
Interactions						
Age (years; quartiles)						
ELS x Ages 34-45 (REF)	–	–				
ELS x Ages 46-54	-0.0287 (0.0920)	(-0.2110, 0.1536)				
ELS x Ages 55-62	-0.1004 (0.0986)	(-0.2957, 0.0949)				
ELS x Ages 63-84	-0.0211 (0.0959)	(-0.2111, 0.1688)				
Race/Ethnicity						
ELS x Non-Hispanic White (REF)			–	–		
ELS x Non-Hispanic Black			0.0608 (0.0897)	(-0.1169, 0.2385)		
ELS x Non-Hispanic Other			-0.1699 (0.1639)	(-0.4945, 0.1547)		
ELS x Hispanic			-0.0363 (0.1806)	(-0.3940, 0.3214)		
Marital Status						
ELS x Married; Living w/Someone (REF)					–	–
ELS x Separated; Divorced					0.0388 (0.0902)	(-0.1399, 0.2176)
ELS x Widowed					0.1613 (0.1175)	(-0.0715, 0.3940)
ELS x Never Married					-0.0920 (0.1074)	(-0.3048, 0.1207)

All models adjusted for data collection site + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.33: Examining, simultaneously, the moderating role of age, race/ethnicity and marital status with respect to the relationship between the component psychosocial stress domain, early life stress, with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Age, Race/Ethnicity and Marital Status	
	Estimate (SE)	**95% CI**
Main Effects		
Early Life Stress (ELS)	0.0861 (0.0746)	(-0.0619, 0.2341)
Age (years; quartiles)		
Ages 34-45 (REF)	–	–
Ages 46-54	0.3024 (0.0825)	(0.1389, 0.4659)
Ages 55-62	0.7842 (0.0891)	(0.6075, 0.9609)
Ages 63-84	1.066 (0.0922)	(0.8830,1.249)
Race/Ethnicity		
Non-Hispanic White (REF)	–	–
Non-Hispanic Black	0.1414 (0.0957)	(-0.0484, 0.3313)
Non-Hispanic Other	0.0897 (0.1922)	(-0.2913, 0.4707)
Hispanic	-0.1002 (0.1615)	(-0.4203, 0.2199)
Marital Status		
Married; Living w/Someone (REF)	–	–
Separated; Divorced	-0.0331 (0.0853)	(-0.2022, 0.1360)
Widowed	0.1894 (0.1198)	(-0.0482, 0.4270)
Never Married	0.0781 (0.0994)	(-0.1190, 0.2751)
Interactions		
Age (years; quartiles)		
ELS x Ages 34-45 (REF)	–	–
ELS x Ages 46-54	-0.0434 (0.0930)	(-0.2278, 0.1410)
ELS x Ages 55-62	-0.1330 (0.1017)	(-0.3346, 0.0687)
ELS x Ages 63-84	-0.0651 (0.1005)	(-0.2643, 0.1341)
Race/Ethnicity		
ELS x Non-Hispanic White (REF)	–	–
ELS x Non-Hispanic Black	0.0972 (0.0976)	(-0.0964, 0.2908)
ELS x Non-Hispanic Other	-0.1893 (0.1721)	(-0.5306, 0.1519)
ELS x Hispanic	0.0170 (0.1874)	(-0.3546, 0.3886)
Marital Status		
ELS x Married; Living w/Someone (REF)	–	–
ELS x Separated; Divorced	0.0282 (0.0931)	(-0.1563, 0.2128)
ELS x Widowed	0.1288 (0.1267)	(-0.1224, 0.3799)
ELS x Never Married	-0.1455 (0.1172)	(-0.3779, 0.0869)

Model adjusted for data collection site + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.34a: Examining, individually, the moderating role of autonomy, environmental mastery and personal growth, from the psychological well-being scales, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Autonomy (n=1,177)		Model 2: Environmental Mastery		Model 3: Personal Growth	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Summary Index Measure (SIM)	0.4585 (0.1908)	(0.0805, 0.8365)	0.2823 (0.1728)	(-0.0601, 0.6248)	0.1960 (0.1983)	(-0.1969, 0.5889)
Psychological Well-Being Scales						
Autonomy	0.0137 (0.0046)	(0.0046, 0.0229)				
Environmental Mastery			0.0049 (0.0048)	(-0.0046, 0.0144)		
Personal Growth					-0.0037 (0.0050)	(-0.0135, 0.0061)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	-0.0084 (0.0050)	(-0.0183, 0.0016)				
SIM x Environmental Mastery			-0.0036 (0.0045)	(-0.0125, 0.0053)		
SIM x Personal Growth					-0.0019 (0.0050)	(-0.0118, 0.0080)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.34b: Examining, individually, the moderating role of positive relations with others, purpose in life and self-acceptance, from the psychological well-being scales, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 4: Positive Relations with Others		Model 5: Purpose in Life		Model 6: Self-Acceptance	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
Main Effects						
Summary Index Measure (SIM)	0.3825 (0.2004)	(-0.0146, 0.7797)	0.1747 (0.2024)	(-0.2263, 0.5758)	0.2851 (0.1682)	(-0.0482, 0.6184)
Psychological Well-Being Scales						
Positive Relations with Others	0.0095 (0.0050)	(-0.0003, 0.0194)				
Purpose in Life			0.0040 (0.0051)	(-0.0061, 0.0140)		
Self-Acceptance					0.0010 (0.0045)	(-0.0078, 0.0098)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	-0.0058 (0.0049)	(-0.0155, 0.0039)				
SIM x Purpose in Life			-0.0010 (0.0050)	(-0.0109, 0.0090)		
SIM x Self-Acceptance					-0.0041 (0.0043)	(-0.0126, 0.0044)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.35a: Examining, individually, the moderating role of positive reinterpretation and growth, active coping and planning, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Positive Reinterpretation and Growth (n=1,173)		Model 2: Active Coping (n=1,174)		Model 3: Planning (n=1,174)	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Summary Index Measure (SIM)	0.3654 (0.1690)	(0.0305, 0.7002)	0.0845 (0.1885)	(-0.2891, 0.4581)	0.1272 (0.1802)	(-0.2299, 0.4844)
Coping Scales						
Positive Reinterpretation and Growth	0.0074 (0.0125)	(-0.0173, 0.0322)				
Active Coping			-0.0118 (0.0143)	(-0.0402, 0.0166)		
Planning					0.0039 (0.0132)	(-0.0222, 0.0301)
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	-0.0182 (0.0132)	(-0.0443, 0.0080)				
SIM x Active Coping			0.0036 (0.0145)	(-0.0252, 0.0324)		
SIM x Planning					0.0007 (0.0134)	(-0.0259, 0.0272)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.35b: Examining, individually, the moderating role of focus on and venting of emotions, denial and behavioral disengagement, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 4: Focus on and Venting of Emotions (n=1,174)		Model 5: Denial (n=1,174)		Model 6: Behavioral Disengagement (n=1,173)	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Summary Index Measure (SIM)	0.0488 (0.1117)	(-0.1724, 0.2701)	0.1834 (0.1053)	(-0.0251, 0.3920)	0.2009 (0.1068)	(-0.0107, 0.4125)
Coping Scales						
Focus on and Venting of Emotions	-0.0103 (0.0112)	(-0.0324, 0.0119)				
Denial			-0.0251 (0.0161)	(-0.0570, 0.0068)		
Behavioral Disengagement					-0.0260 (0.0135)	(-0.0527, 0.0007)
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	0.0097 (0.0109)	(-0.0120, 0.0314)				
SIM x Denial			-0.0067 (0.0158)	(-0.0380, 0.0246)		
SIM x Behavioral Disengagement					-0.0083 (0.0142)	(-0.0365, 0.0199)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.35c: Examining, individually, the moderating role of using food to cope, problem focused coping and emotion focused coping, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 7: Using Food to Cope (n=1,174)		Model 8: Problem Focused Coping (n=1,173)		Model 9: Emotion Focused Coping (n=1,174)	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Summary Index Measure (SIM)	0.1193 (0.0806)	(-0.0404, 0.2790)	0.2211 (0.2068)	(-0.1889, 0.6310)	0.1401 (0.1476)	(-0.1524, 0.4326)
Coping Scales						
Using Food to Cope	0.0683 (0.0170)	(0.0347, 0.1019)				
Problem Focused Coping			0.0006 (0.0053)	(-0.0098, 0.0110)		
Emotion Focused Coping					-0.0128 (0.0061)	(-0.0250, -0.0007)
Interactions						
Coping Scales						
SIM x Using Food to Cope	-0.0042 (0.0165)	(-0.0370, 0.0285)				
SIM x Problem Focused Coping			-0.0023 (0.0053)	(-0.0128, 0.0082)		
SIM x Emotion Focused Coping					0.0005 (0.0063)	(-0.0119, 0.0130)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.36a: Examining, individually, the moderating role of neuroticism, extraversion and conscientiousness, from the personality trait scales, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Neuroticism (n=1,176)		Model 2: Extraversion (n=1,176)		Model 3: Conscientiousness (v1)		Model 4: Conscientiousness (v2)	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
Main Effects								
Summary Index Measure (SIM)	0.1019 (0.1172)	(-0.1303, 0.3340)	0.2145 (0.1625)	(-0.1075, 0.5365)	0.2700 (0.2650)	(-0.2550, 0.7950)	0.2141 (0.2639)	(-0.3089, 0.7370)
Personality Trait Scales								
Neuroticism	0.0399 (0.0491)	(-0.0574, 0.1372)						
Extraversion			0.0395 (0.0532)	(-0.0659, 0.1449)				
Conscientiousness (v1)					-0.0977 (0.0695)	(-0.2354, 0.0401)		
Conscientiousness (v2)							-0.0837 (0.0706)	(-0.2235, 0.0561)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	0.0094 (0.0511)	(-0.0918, 0.1106)						
SIM x Extraversion			-0.0253 (0.0517)	(-0.1278, 0.0772)				
SIM x Conscientiousness (v1)					-0.0439 (0.0778)	(-0.1979, 0.1102)		
SIM x Conscientiousness (v2)							-0.0276 (0.0787)	(-0.1835, 0.1283)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.36b: Examining, individually, the moderating role of openness to experience, agreeableness and agency, from the personality trait scales, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 5: Openness to Experience (n=1,169)		Model 6: Agreeableness		Model 7: Agency (n=1,175)	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
Main Effects						
Summary Index Measure (SIM)	0.2257 (0.1752)	(-0.1214, 0.5728)	0.0912 (0.2041)	(-0.3132, 0.4956)	0.1592 (0.1338)	(-0.1060, 0.4244)
Personality Trait Scales						
Openness to Experience	-0.0492 (0.0584)	(-0.1650, 0.0666)				
Agreeableness			0.1523 (0.0599)	(0.0337, 0.2709)		
Agency					0.0746 (0.0458)	(-0.0163, 0.1654)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	-0.0337 (0.0589)	(-0.1503, 0.0830)				
SIM x Agreeableness			0.0157 (0.0596)	(-0.1024, 0.1339)		
SIM x Agency					-0.0098 (0.0497)	(-0.1083, 0.0888)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.37: Examining, individually, the moderating role of each of the three psychosocial resource scale types: psychological well-being, coping and personality traits with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Psychological Well-Being Scales (n=1,177)		Model 2: Coping Scales (n=1,172)		Model 3: Personality Trait Scales (n=1,169)	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
Main Effects						
Summary Index Measure (SIM)	0.4701 (0.2584)	(-0.0426, 0.9827)	0.3151 (0.2828)	(-0.2463, 0.8765)	0.3630 (0.3725)	(-0.3762, 1.102)
Psychological Well-Being Scales						
Autonomy	0.0173 (0.0054)	(0.0066, 0.0280)				
Environmental Mastery	0.0024 (0.0065)	(-0.0105, 0.0153)				
Personal Growth	-0.0163 (0.0066)	(-0.0295, -0.0032)				
Positive Relations with Others	0.0151 (0.0063)	(0.0027, 0.0275)				
Purpose in Life	0.0048 (0.0073)	(-0.0097, 0.0193)				
Self-Acceptance	-0.0098 (0.0067)	(-0.0231, 0.0036)				
Coping Scales						
Positive Reinterpretation and Growth			-0.9716 (0.4528)	(-1.870, -0.0728)		
Active Coping			-1.033 (0.4526)	(-1.931, -0.1341)		
Planning			-0.9603 (0.4515)	(-1.857, -0.0640)		
Focus on and Venting of Emotions			0.0675 (0.0649)	(-0.0613, 0.1962)		
Denial			0.0602 (0.0668)	(-0.0723 0.1927)		
Behavioral Disengagement			0.0443 (0.0688)	(-0.0923, 0.1808)		
Using Food to Cope			0.0838 (0.0173)	(0.0496, 0.1181)		
Problem Focused Coping			0.9856 (0.4518)	(0.0887, 1.883)		
Emotion Focused Coping			-0.0801 (0.0653)	(-0.2096, 0.0495)		
Personality Trait Scales						
Neuroticism					0.0251 (0.0496)	(-0.0734, 0.1236)
Extraversion					-0.0766 (0.0767)	(-0.2288, 0.0757)
Openness to Experience					-0.1589 (0.0708)	(-0.2994, -0.0183)
Conscientiousness (v1)					-0.0525 (0.2427)	(-0.5342, 0.4292)
Conscientiousness (v2)					-0.0931 (0.2504)	(-0.5900, 0.4038)
Agreeableness					0.2620 (0.0758)	(0.1116, 0.4123)
Agency					0.1732 (0.0595)	(0.0551, 0.2914)
Interactions						
Psychological Well-Being Scales						

SIM x Autonomy	-0.0068 (0.0057)	(-0.0180, 0.0045)				
SIM x Environmental Mastery	0.0011 (0.0069)	(-0.0126, 0.0149)				
SIM x Personal Growth	0.0001 (0.0070)	(-0.0139, 0.0140)				
SIM x Positive Relations with Others	-0.0052 (0.0071)	(-0.0193, 0.0089)				
SIM x Purpose in Life	0.0057 (0.0072)	(-0.0085, 0.0200)				
SIM x Self-Acceptance	-0.0036 (0.0073)	(-0.0180, 0.0108)				
Coping Scales						
SIM x Positive Reinterpretation and Growth			0.6135 (0.6895)	(-0.7552, 1.982)		
SIM x Active Coping			0.6704 (0.6869)	(-0.6931, 2.034)		
SIM x Planning			0.6436 (0.6854)	(-0.7169, 2.004)		
SIM x Focus on and Venting of Emotions			-0.0413 (0.0525)	(-0.1455, 0.0630)		
SIM x Denial			-0.0548 (0.0568)	(-0.1676, 0.0579)		
SIM x Behavioral Disengagement			-0.0679 (0.0584)	(-0.1837, 0.0479)		
SIM x Using Food to Cope			0.0024 (0.0170)	(-0.0314, 0.0362)		
SIM x Problem Focused Coping			-0.6467 (0.6870)	(-2.010, 0.7171)		
SIM x Emotion Focused Coping			0.0512 (0.0543)	(-0.0565, 0.1589)		
Personality Trait Scales						
SIM x Neuroticism					-0.0117 (0.0542)	(-0.1192, 0.0959)
SIM x Extraversion					-0.0578 (0.0761)	(-0.2088, 0.0932)
SIM x Openness to Experience					-0.0587 (0.0766)	(-0.2107, 0.0933)
SIM x Conscientiousness (v1)					-0.3706 (0.2443)	(-0.8554, 0.1142)
SIM x Conscientiousness (v2)					0.3315 (0.2512)	(-0.1670, 0.8300)
SIM x Agreeableness					0.0692 (0.0760)	(-0.0816, 0.2200)
SIM x Agency					0.0205 (0.0651)	(-0.1088, 0.1497)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.38: Examining, simultaneously, the moderating role of each of the three psychosocial resource scale types: psychological well-being, coping and personality traits with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model: Psychosocial Resource Scales (n=1,159)	
	Estimate (SE)	**95% CI**
Main Effects		
Summary Index Measure (SIM)	1.037 (0.4508)	(0.1377, 1.937)
Psychological Well-Being Scales		
Autonomy	0.0200 (0.0057)	(0.0085, 0.0314)
Environmental Mastery	0.0057 (0.0065)	(-0.0074, 0.0187)
Personal Growth	-0.0127 (0.0071)	(-0.0269, 0.0015)
Positive Relations with Others	0.0140 (0.0068)	(0.0004, 0.0275)
Purpose in Life	0.0027 (0.0073)	(-0.0119, 0.0174)
Self-Acceptance	-0.0095 (0.0068)	(-0.0231, 0.0041)
Coping Scales		
Positive Reinterpretation and Growth	-0.9160 (0.4032)	(-1.721, -0.1114)
Active Coping	-0.9835 (0.4037)	(-1.789, -0.1780)
Planning	-0.8901 (0.4020)	(-1.692, -0.0879)
Focus on and Venting of Emotions	0.0505 (0.0645)	(-0.0781, 0.1792)
Denial	0.0582 (0.0662)	(-0.0739, 0.1902)
Behavioral Disengagement	0.0499 (0.0676)	(-0.0849, 0.1847)
Using Food to Cope	0.0815 (0.0169)	(0.0478, 0.1152)
Problem Focused Coping	0.9271 (0.4024)	(0.1241, 1.730)
Emotion Focused Coping	-0.0784 (0.0645)	(-0.2071, 0.0503)
Personality Trait Scales		
Neuroticism	0.0988 (0.0577)	(-0.0164, 0.2140)
Extraversion	-0.1032 (0.0779)	(-0.2587, 0.0523)
Openness to Experience	-0.1536 (0.0735)	(-0.3003, -0.0069)
Conscientiousness (v1)	-0.0810 (0.2328)	(-0.5455, 0.3835)
Conscientiousness (v2)	-0.0775 (0.2427)	(-0.5618, 0.4068)
Agreeableness	0.2119 (0.0769)	(0.0586, 0.3653)
Agency	0.1477 (0.0631)	(0.0219, 0.2735)
Interactions		
Psychological Well-Being Scales		

SIM x Autonomy	-0.0064 (0.0063)	(-0.0190, 0.0061)
SIM x Environmental Mastery	0.0029 (0.0072)	(-0.0116, 0.0173)
SIM x Personal Growth	0.0025 (0.0074)	(-0.0123, 0.0172)
SIM x Positive Relations with Others	-0.0089 (0.0082)	(-0.0253, 0.0074)
SIM x Purpose in Life	0.0077 (0.0072)	(-0.0068, 0.0221)
SIM x Self-Acceptance	-0.0064 (0.0074)	(-0.0212, 0.0084)
Coping Scales		
SIM x Positive Reinterpretation and Growth	1.066 (0.6558)	(-0.2432, 2.374)
SIM x Active Coping	1.127 (0.6539)	(-0.1783, 2.432)
SIM x Planning	1.096 (0.6521)	(-0.2051, 2.397)
SIM x Focus on and Venting of Emotions	-0.0403 (0.0555)	(-0.1510, 0.0704)
SIM x Denial	-0.0662 (0.0584)	(-0.1827, 0.0503)
SIM x Behavioral Disengagement	-0.0733 (0.0611)	(-0.1953, 0.0487)
SIM x Using Food to Cope	-0.0073 (0.0174)	(-0.0420, 0.0274)
SIM x Problem Focused Coping	-1.100 (0.6538)	(-2.405, 0.2042)
SIM x Emotion Focused Coping	0.0561 (0.0569)	(-0.0574, 0.1696)
Personality Trait Scales		
SIM x Neuroticism	-0.0863 (0.0676)	(-0.2211, 0.0486)
SIM x Extraversion	-0.0242 (0.0776)	(-0.1791, 0.1307)
SIM x Openness to Experience	-0.0539 (0.0788)	(-0.2112, 0.1035)
SIM x Conscientiousness (v1)	-0.3618 (0.2375)	(-0.8357, 0.1121)
SIM x Conscientiousness (v2)	0.2805 (0.2480)	(-0.2144, 0.7755)
SIM x Agreeableness	0.0869 (0.0767)	(-0.0661, 0.2399)
SIM x Agency	0.0275 (0.0705)	(-0.1132, 0.1682)

Model adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.39a: Examining, individually, the moderating role of autonomy, environmental mastery and personal growth, from the psychological well-being scales, by age, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Autonomy		Model 2: Environmental Mastery		Model 3: Personal Growth	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
AGES 34-45						
Main Effects						
Summary Index Measure (SIM)	0.1153 (0.3906)	(-0.6926, 0.9233)	0.1421 (0.3508)	(-0.5836, 0.8678)	0.0088 (0.3719)	(-0.7604, 0.7781)
Psychological Well-Being Scales						
Autonomy (n=311)	0.0025 (0.0083)	(-0.0147, 0.0198)				
Environmental Mastery (n=312)			0.0014 (0.0091)	(-0.0175, 0.0202)		
Personal Growth (n=312)					-0.0154 (0.0091)	(-0.0342, 0.0035)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	0.0038 (0.0107)	(-0.0183, 0.0258)				
SIM x Environmental Mastery			0.0029 (0.0096)	(-0.0170, 0.0228)		
SIM x Personal Growth					0.0053 (0.0096)	(-0.0146, 0.0251)
AGES 46-54						
Main Effects						
Summary Index Measure (SIM)	0.4690 (0.3456)	(-0.2600, 1.198)	0.0798 (0.3504)	(-0.6595, 0.8191)	-0.4360 (0.3828)	(-1.244, 0.3716)
Psychological Well-Being Scales						
Autonomy (n=314)	0.0203 (0.0094)	(0.0004, 0.0401)				
Environmental Mastery (n=315)			0.0045 (0.0110)	(-0.0186, 0.0277)		
Personal Growth (n=315)					-0.0114 (0.0105)	(-0.0335, 0.0108)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	-0.0060 (0.0090)	(-0.0251, 0.0131)				
SIM x Environmental Mastery			0.0046 (0.0090)	(-0.0144, 0.0235)		
SIM x Personal Growth					0.0167 (0.0096)	(-0.0036, 0.0370)
AGES 55-62						
Main Effects						
Summary Index Measure (SIM)	0.3136 (0.4321)	(-1.546, 2.173)	0.2788 (0.3969)	(-1.429, 1.987)	0.2112 (0.4767)	(-1.840, 2.262)
Psychological Well-Being Scales						
Autonomy (n=267)	0.0202 (0.0101)	(-0.0233, 0.0637)				
Environmental Mastery (n=267)			0.0108 (0.0088)	(-0.0271, 0.0487)		
Personal Growth (n=267)					0.0090 (0.0101)	(-0.0343, 0.0523)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	-0.0094 (0.0115)	(-0.0590, 0.0402)				
SIM x Environmental Mastery			-0.0078 (0.0101)	(-0.0510, 0.0355)		
SIM x Personal Growth					-0.0064 (0.0119)	(-0.0577, 0.0448)
AGES 63-84						
Main Effects						
Summary Index Measure (SIM)	0.6402 (0.4808)	(-0.5362, 1.187)	-0.0401 (0.4692)	(-1.150, 1.070)	0.1502 (0.4680)	(-0.9565, 1.257)
Psychological Well-Being Scales						
Autonomy (n=285)	0.0155 (0.0110)	(-0.0113, 0.0423)				
Environmental Mastery (n=288)			-0.0004 (0.0120)	(-0.0289, 0.0281)		
Personal Growth (n=288)					-0.0056 (0.0124)	(-0.0348, 0.0237)
Interactions						
Psychological Well-Being Scales						

SIM x Autonomy	-0.0158 (0.0122)	(-0.0456, 0.0140)				
SIM x Environmental Mastery			0.0009 (0.0120)	(-0.0274, 0.0293)		
SIM x Personal Growth					-0.0040 (0.0121)	(-0.0325, 0.0245)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.39b: Examining, individually, the moderating role of positive relations with others, purpose in life and self-acceptance, from the psychological well-being scales, by age, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 4: Positive Relations with Others		Model 5: Purpose in Life		Model 6: Self-Acceptance	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
AGES 34-45						
Main Effects						
Summary Index Measure (SIM)	0.3577 (0.3694)	(-0.4064, 1.122)	-0.2137 (0.4018)	(-1.045, 0.6176)	0.0097 (0.3050)	(-0.6214, 0.6407)
Psychological Well-Being Scales						
Positive Relations with Others (n=312)	0.0048 (0.0091)	(-0.0140, 0.0235)				
Purpose in Life (n=312)			-0.0154 (0.0102)	(-0.0364, 0.0057)		
Self-Acceptance (n=312)					-0.0030 (0.0084)	(-0.0204, 0.0144)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	-0.0031 (0.0096)	(-0.0229, 0.0167)				
SIM x Purpose in Life			0.0112 (0.0103)	(-0.0102, 0.0325)		
SIM x Self-Acceptance					0.0064 (0.0083)	(-0.0107, 0.0235)
AGES 46-54						
Main Effects						
Summary Index Measure (SIM)	0.0932 (0.4288)	(-0.8115, 0.9978)	-0.1832 (0.4085)	(-1.045, 0.6787)	0.1521 (0.3627)	(-0.6131, 0.9174)
Psychological Well-Being Scales						
Positive Relations with Others (n=315)	0.0091 (0.0124)	(-0.0170, 0.0352)				
Purpose in Life (n=315)			0.0057 (0.0107)	(-0.0169, 0.0283)		
Self-Acceptance (n=315)					0.0032 (0.0102)	(-0.0184, 0.0247)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	0.0041 (0.0105)	(-0.0181, 0.0262)				
SIM x Purpose in Life			0.0109 (0.0102)	(-0.0107, 0.0324)		
SIM x Self-Acceptance					0.0022 (0.0091)	(-0.0171, 0.0215)
AGES 55-62						
Main Effects						
Summary Index Measure (SIM)	0.7153 (0.4888)	(-1.388, 2.819)	0.0494 (0.4235)	(-1.773, 1.872)	0.4808 (0.3709)	(-1.115, 2.077)
Psychological Well-Being Scales						
Positive Relations with Others (n=267)	0.0212 (0.0107)	(-0.0248, 0.0671)				
Purpose in Life (n=267)			0.0035 (0.0107)	(-0.0426, 0.0496)		
Self-Acceptance (n=267)					0.0064 (0.0087)	(-0.0312, 0.0441)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	-0.0179 (0.0118)	(-0.0685, 0.0327)				
SIM x Purpose in Life			-0.0026 (0.0103)	(-0.0468, 0.0416)		
SIM x Self-Acceptance					-0.0133 (0.0092)	(-0.0530, 0.0263)
AGES 63-84						
Main Effects						
Summary Index Measure (SIM)	-0.0074 (0.5128)	(-1.220, 1.205)	-0.0111 (0.4650)	(-1.111, 1.088)	0.1629 (0.4451)	(-0.8897, 1.216)
Psychological Well-Being Scales						
Positive Relations with Others (n=288)	0.0086 (0.0114)	(-0.0182, 0.0355)				
Purpose in Life (n=288)			0.0035 (0.0125)	(-0.0260, 0.0329)		
Self-Acceptance (n=288)					-0.0087 (0.0112)	(-0.0352, 0.0177)
Interactions						
Psychological Well-Being Scales						

SIM x Positive Relations with Others	0.0007 (0.0124)	(-0.0287, 0.0301)				
SIM x Purpose in Life			0.0005 (0.0120)	(-0.0280, 0.0289)		
SIM x Self-Acceptance					-0.0046 (0.0113)	(-0.0313, 0.0221)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.40a: Examining, individually, the moderating role of positive reinterpretation and growth, active coping and planning, from the coping scales, by age, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Positive Reinterpretation and Growth		Model 2: Active Coping		Model 3: Planning	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
AGES 34-45						
Main Effects						
Summary Index Measure (SIM)	0.1534 (0.2827)	(-0.4314, 0.7382)	0.1787 (0.3615)	(-0.5691, 0.9265)	0.1249 (0.3603)	(-0.6205, 0.8702)
Coping Scales						
Positive Reinterpretation and Growth (n=312)	-0.0221 (0.0216)	(-0.0667, 0.0225)				
Active Coping (n=312)			-0.0470 (0.0255)	(-0.0997, 0.0058)		
Planning (n=312)					-0.0198 (0.0248)	(-0.0712, 0.0316)
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	0.0057 (0.0234)	(-0.0427, 0.0540)				
SIM x Active Coping			0.0026 (0.0287)	(-0.0567, 0.0619)		
SIM x Planning					0.0080 (0.0281)	(-0.0502, 0.0662)
AGES 46 - 54						
Main Effects						
Summary Index Measure (SIM)	0.0730 (0.3554)	(-0.6768, 0.8227)	-0.6886 (0.3528)	(-1.433, 0.0557)	-0.4022 (0.3378)	(-1.115, 0.3105)
Coping Scales						
Positive Reinterpretation and Growth (n=313)	0.0007 (0.0273)	(-0.0568, 0.0582)				
Active Coping (n=314)			-0.0440 (0.0281)	(-0.1033, 0.0153)		
Planning (n=314)					-0.0229 (0.0248)	(-0.0751, 0.0294)
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	0.0130 (0.0273)	(-0.0447, 0.0706)				
SIM x Active Coping			0.0734 (0.0267)	**(0.0170, 0.1297)***		
SIM x Planning					0.0494 (0.0246)	(-0.0026, 0.1014)
AGES 55-62						
Main Effects						
Summary Index Measure (SIM)	0.2742 (0.3629)	(-1.287, 1.836)	-0.1226 (0.4345)	(-1.992, 1.747)	-0.3446 (0.4419)	(-2.246, 1.557)
Coping Scales						
Positive Reinterpretation and Growth (n=265)	0.0395 (0.0263)	(-0.0735, 0.1526)				
Active Coping (n=265)			0.0241 (0.0315)	(-0.1115, 0.1598)		
Planning (n=265)					0.0027 (0.0288)	(-0.1213, 0.1266)
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	-0.0262 (0.0286)	(-0.1490, 0.0967)				
SIM x Active Coping			0.0050 (0.0339)	(-0.1410, 0.1510)		
SIM x Planning					0.0209 (0.0331)	(-0.1216, 0.1635)
AGES 63-84						
Main Effects						
Summary Index Measure (SIM)	0.7509 (0.5251)	(-0.5339, 2.036)	-0.2532 (0.4352)	(-1.318, 0.8117)	-0.0550 (0.4344)	(-1.118, 1.008)
Coping Scales						
Positive Reinterpretation and Growth (n=283)	-0.0231 (0.0370)	(-0.1137, 0.0675)				
Active Coping (n=283)			0.0072 (0.0377)	(-0.0850, 0.0995)		
Planning (n=283)					0.0165 (0.0339)	(-0.0664, 0.0994)
Interactions						
Coping Scales						

SIM x Positive Reinterpretation and Growth	-0.0583 (0.0407)	(-0.1579, 0.0413)				
SIM x Active Coping			0.0186 (0.0330)	(-0.0622, 0.0994)		
SIM x Planning					0.0040 (0.0322)	(-0.0746, 0.0827)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.40b: Examining, individually, the moderating role of focus on and venting of emotions, denial and behavioral disengagement, from the coping scales, by age, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 4: Focus on and Venting of Emotions		Model 5: Denial		Model 6: Behavioral Disengagement	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
AGES 34-45						
Main Effects						
Summary Index Measure (SIM)	0.2010 (0.2244)	(-0.2632, 0.66510	0.5257 (0.2399)	(0.0295, 1.022)	0.5460 (0.2427)	(0.0440, 1.048)
Coping Scales						
Focus on and Venting of Emotions (n=312)	0.0026 (0.0237)	(-0.0464, 0.0516)				
Denial (n=312)			0.0249 (0.0361)	(-0.0498, 0.0995)		
Behavioral Disengagement (n=312)					0.0389 (0.0314)	(-0.0261, 0.1038)
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	0.0031 (0.0219)	(-0.0423, 0.0484)				
SIM x Denial			-0.0471 (0.0361)	(-0.1218, 0.02757)		
SIM x Behavioral Disengagement					-0.0464 (0.0340)	(-0.1167, 0.0239)
AGES 46 – 54						
Main Effects						
Summary Index Measure (SIM)	0.1745 (0.2360)	(-0.3234, 0.6723)	0.5571 (0.1858)	(0.1650, 0.9492)	0.6727 (0.2156)	(0.2178, 1.128)
Coping Scales						
Focus on and Venting of Emotions (n=314)	-0.0106 (0.0239)	(-0.0611, 0.0398)				
Denial (n=314)			0.0509 (0.0314)	(-0.0152, 0.1170)		
Behavioral Disengagement (n=313)					0.0296 (0.0322)	(-0.0382, 0.0975)
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	0.0071 (0.0231)	(-0.0416, 0.0558)				
SIM x Denial			-0.0543 (0.0291)	(-0.1157, 0.0071)		
SIM x Behavioral Disengagement					-0.0636 (0.0294)	**(-0.1256, -0.0016)***
AGES 55-62						
Main Effects						
Summary Index Measure (SIM)	0.1361 (0.2306)	(-0.8562, 1.128)	-0.1167 (0.2327)	(-1.118, 0.8846)	0.1464 (0.2420)	(-0.8948, 1.188)
Coping Scales						
Focus on and Venting of Emotions (n=265)	-0.0368 (0.0206)	(-0.1252, 0.0516)				
Denial (n=265)			-0.0506 (0.0307)	(-0.1826, 0.0815)		
Behavioral Disengagement (n=265)					-0.0798 (0.0219)	(-0.1741, 0.0145)
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	-0.0187 (0.0246)	(-0.1244, 0.0871)				
SIM x Denial			0.0129 (0.0370)	(-0.1461, 0.1719)		
SIM x Behavioral Disengagement					-0.0251 (0.0312)	(-0.1592, 0.1090)
AGES 63-84						
Main Effects						
Summary Index Measure (SIM)	-0.3703 (0.2771)	(-1.048, 0.3079)	0.1860 (0.2676)	(-0.4689, 0.8409)	-0.0185 (0.2588)	(-0.6518, 0.6148)
Coping Scales						
Focus on and Venting of Emotions (n=283)	0.0048 (0.0235)	(-0.0527, 0.0623)				
Denial (n=283)			-0.0878 (0.0379)	(-0.1806, 0.0050)		
Behavioral Disengagement (n=283)					-0.0426 (0.0332)	(-0.1240, 0.0387)
Interactions						
Coping Scales						

SIM x Focus on and Venting of Emotions	0.0426 (0.0281)	(-0.0261, 0.1113)				
SIM x Denial			-0.0259 (0.0389)	(-0.1210, 0.0692)		
SIM x Behavioral Disengagement					0.0021 (0.0356)	(-0.0850, 0.0892)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.40c: Examining, individually, the moderating role of using food to cope, problem focused coping and emotion focused coping, from the coping scales, by age, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 7: Using Food to Cope		Model 8: Problem Focused Coping		Model 9: Emotion Focused Coping	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
AGES 34-45						
Main Effects						
Summary Index Measure (SIM)	0.3251 (0.1699)	(-0.0265, 0.6767)	0.0953 (0.3920)	(-0.7156, 0.9061)	0.5707 (0.3356)	(-0.1235, 1.265)
Coping Scales						
Using Food to Cope (n=312)	0.1118 (0.0311)	(0.0476, 0.1761)				
Problem Focused Coping (n=312)			-0.0138 (0.0097)	(-0.0338, 0.0061)		
Emotion Focused Coping (n=312)					0.0095 (0.0135)	(-0.0184, 0.0375)
Interactions						
Coping Scales						
SIM x Using Food to Cope	-0.0317 (0.0319)	(-0.0977, 0.0343)				
SIM x Problem Focused Coping			0.0032 (0.0105)	(-0.0184, 0.0249)		
SIM x Emotion Focused Coping					-0.0148 (0.0143)	(-0.0444, 0.0147)
AGES 46-54						
Main Effects						
Summary Index Measure (SIM)	0.3309 (0.1582)	(-0.0028, 0.6646)	-0.5739 (0.4263)	(-1.473, 0.3255)	0.5751 (0.2916)	(-0.0402, 1.190)
Coping Scales						
Using Food to Cope (n= 314)	0.0618 (0.0353)	(-0.0127, 0.1362)				
Problem Focused Coping (n=313)			-0.0108 (0.0110)	(-0.0339, 0.0123)		
Emotion Focused Coping (n=314)					0.0082 (0.0131)	(-0.0193, 0.0357)
Interactions						
Coping Scales						
SIM x Using Food to Cope	-0.0307 (0.0327)	(-0.0996, 0.0382)				
SIM x Problem Focused Coping			0.0211 (0.0108)	(-0.0016, 0.0439)		
SIM x Emotion Focused Coping					-0.0152 (0.0127)	(-0.0419, 0.0115)
AGES 55-62						
Main Effects						
Summary Index Measure (SIM)	-0.0153 (0.1544)	(-0.6796, 0.6489)	0.0230 (0.4902)	(-2.086, 2.132)	0.1572 (0.3377)	(-1.296, 1.610)
Coping Scales						
Using Food to Cope (n=265)	0.0386 (0.0320)	(-0.0991, 0.1762)				
Problem Focused Coping (n=265)			0.0114 (0.0114)	(-0.0379, 0.0606)		
Emotion Focused Coping (n=265)					-0.0355 (0.0113)	(-0.0841, 0.0131)
Interactions						
Coping Scales						
SIM x Using Food to Cope	-0.0175 (0.0375)	(-0.1787, 0.1438)				
SIM x Problem Focused Coping			-0.0021 (0.0127)	(-0.0565, 0.0524)		
SIM x Emotion Focused Coping					-0.0073 (0.0149)	(-0.0712, 0.0566)
AGES 63-84						
Main Effects						
Summary Index Measure (SIM)	-0.2391 (0.2099)	(-0.7528, 0.2747)	0.1582 (0.5045)	(-1.076, 1.393)	-0.1645 (0.3604)	(-1.046, 0.7173)
Coping Scales						
Using Food to Cope (n=283)	0.0435 (0.0403)	(-0.0551, 0.1421)				
Problem Focused Coping (n=283)			0.0018 (0.0135)	(-0.0313, 0.0349)		
Emotion Focused Coping (n=283)					-0.0214 (0.0141)	(-0.0559, 0.0131)
Interactions						
Coping Scales						

SIM x Using Food to Cope	0.0620 (0.0485)	(-0.0565, 0.1806)				
SIM x Problem Focused Coping			-0.0040 (0.0128)	(-0.0354, 0.0273)		
SIM x Emotion Focused Coping					0.0088 (0.0153)	(-0.0286, 0.0462)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.41a: Examining, individually, the moderating role of neuroticism, extraversion and conscientiousness, from the personality trait scales, by age, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Neuroticism		Model 2: Extraversion		Model 3: Conscientiousness (v1)		Model 4: Conscientiousness (v2)	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
AGES 34-45								
Main Effects								
Summary Index Measure (SIM)	0.2097 (0.2399)	(-0.2864, 0.7059)	0.1348 (0.2864)	(-0.4577, 0.7273)	-0.7002 (0.6019)	(-1.945, 0.5449)	-0.4476 (0.5917)	(-1.672, 0.7764)
Personality Trait Scales								
Neuroticism (n=311)	-0.0229 (0.0905)	(-0.2100, 0.1642)						
Extraversion (n=311)			-0.1509 (0.1007)	(-0.3591, 0.0574)				
Conscientiousness (v1) (n=312)					-0.1311 (0.1385)	(-0.4177, 0.1554)		
Conscientiousness (v2) (n=312)							-0.1257 (0.1360)	(-0.4070, 0.1556)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	0.0133 (0.0947)	(-0.1826, 0.2092)						
SIM x Extraversion			0.0258 (0.0908)	(-0.1620, 0.2135)				
SIM x Conscientiousness (v1)					0.2750 (0.1786)	(-0.0945, 0.6445)		
SIM x Conscientiousness (v2)							0.2036 (0.1783)	(-0.1651, 0.5724)
AGES 46-54								
Main Effects								
Summary Index Measure (SIM)	0.1209 (0.2435)	(-0.3928, 0.6345)	-0.0955 (0.3495)	(-0.8330, 0.6420)	-0.3677 (0.5501)	(-1.528, 0.7928)	-0.4516 (0.5286)	(-1.567, 0.6636)
Personality Trait Scales								
Neuroticism (n=314)	0.0149 (0.0954)	(-0.1863, 0.2161)						
Extraversion (n=314)			0.2581 (0.1186)	(0.0079, 0.5084)				
Conscientiousness (v1) (n=315)					-0.1886 (0.1582)	(-0.5223, 0.1451)		
Conscientiousness (v2) (n=315)							-0.1162 (0.1543)	(-0.4418, 0.2094)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	0.0428 (0.1029)	(-0.1743, 0.2599)						
SIM x Extraversion			0.1258 (0.1143)	(-0.1154, 0.3670)				
SIM x Conscientiousness (v1)					0.1660 (0.1587)	(-0.1688, 0.5009)		
SIM x Conscientiousness (v2)							0.1969 (0.1552)	(-0.1304, 0.5243)
AGES 55-62								
Main Effects								
Summary Index Measure (SIM)	0.0384 (0.2366)	(-0.9795, 1.056)	-0.1687 (0.3486)	(-1.669, 1.331)	0.9604 (0.5172)	(-1.265, 3.186)	0.4695 (0.5614)	(-1.946, 2.885)
Personality Trait Scales								
Neuroticism (n=267)	-0.0604 (0.1052)	(-0.5131, 0.3923)						
Extraversion (n=267)			-0.0801 (0.1030)	(-0.5231, 0.3629)				
Conscientiousness (v1) (n=267)					-0.0495 (0.1560)	(-0.7209, 0.6218)		
Conscientiousness (v2) (n=267)							-0.0214 (0.1536)	(-0.6824, 0.6396)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	-0.0443 (0.1132)	(-0.5313, 0.4427)						
SIM x Extraversion			0.0334 (0.1123)	(-0.4496, 0.5164)				
SIM x Conscientiousness (v1)					-0.2956 (0.1472)	(-0.9290, 0.3379)		
SIM x Conscientiousness (v2)							-0.1566 (0.1633)	(-0.8590, 0.5458)
AGES 63-84								
Main Effects								
Summary Index Measure (SIM)	-0.0506 (0.2758)	(-0.7253, 0.6242)	0.5467 (0.4745)	(-0.6145, 1.708)	0.9397 (0.6365)	(-0.5654, 2.445)	0.9581 (0.6492)	(-0.5770, 2.493)

Personality Trait Scales								
Neuroticism (n=284)	0.1230 (0.1211)	(-0.1733, 0.4193)						
Extraversion (n=284)			0.0565 (0.1388)	(-0.2832, 0.3962)				
Conscientiousness (v1) (n=288)					-0.4920 (0.1752)	(-0.9062, -0.0778)		
Conscientiousness (v2) (n=288)							-0.5231 (0.1813)	(-0.9518, -0.0943)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	0.0067 (0.1202)	(-0.2875, 0.3009)						
SIM x Extraversion			-0.1630 (0.1411)	(-0.5083, 0.1823)				
SIM x Conscientiousness (v1)					-0.2876 (0.1853)	(-0.7259, 0.1506)		
SIM x Conscientiousness (v2)							-0.2978 (0.1907)	(-0.7488, 0.1531)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.41b: Examining, individually, the moderating role of openness to experience, agreeableness and agency, from the personality trait scales, by age, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 5: Openness to Experience		Model 6: Agreeableness		Model 7: Agency	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
AGES 34-45						
Main Effects						
Summary Index Measure (SIM)	-0.1630 (0.3022)	(-0.7881, 0.4621)	0.5127 (0.4007)	(-0.3162, 1.342)	-0.0057 (0.2599)	(-0.5434, 0.5320)
Personality Trait Scales						
Openness to Experience (n=311)	-0.3048 (0.1009)	(-0.5136, -0.0961)				
Agreeableness (n=312)			0.3103 (0.1213)	(0.0593, 0.5612)		
Agency (n=311)					-0.0228 (0.0908)	(-0.2106, 0.1650)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	0.1341 (0.1049)	(-0.0830, 0.3511)				
SIM x Agreeableness			-0.0704 (0.1207)	(-0.3202, 0.1794)		
SIM x Agency					0.0961 (0.0970)	(-0.1045, 0.2966)
AGES 46-54						
Main Effects						
Summary Index Measure (SIM)	-0.0835 (0.4140)	(-0.9569, 0.7899)	-0.4877 (0.3850)	(-1.300, 0.3245)	0.1419 (0.2847)	(-0.4587, 0.7426)
Personality Trait Scales						
Openness to Experience (n=311)	0.0818 (0.1345)	(-0.2019, 0.3655)				
Agreeableness (n=315)			-0.0619 (0.1217)	(-0.3186, 0.1949)		
Agency (n=314)					0.2037 (0.0893)	(0.0154, 0.3920)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	0.1074 (0.1397)	(-0.1873, 0.4022)				
SIM x Agreeableness			0.2065 (0.1154)	(-0.0370, 0.4499)		
SIM x Agency					0.0418 (0.1080)	(-0.1861, 0.2697)
AGES 55-62						
Main Effects						
Summary Index Measure (SIM)	-0.3217 (0.3709)	(-1.918, 1.274)	-0.6517 (0.4520)	(-2.597, 1.293)	-0.0187 (0.2419)	(-1.059, 1.022)
Personality Trait Scales						
Openness to Experience (n=267)	-0.0832 (0.1037)	(-0.5294, 0.3631)				
Agreeableness (n=267)			0.1740 (0.1334)	(-0.3999, 0.7478)		
Agency (n=267)					0.0470 (0.0873)	(-0.3286, 0.4227)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	0.0816 (0.1186)	(-0.4286, 0.5917)				
SIM x Agreeableness			0.1717 (0.1272)	(-0.3758, 0.7192)		
SIM x Agency					-0.0150 (0.0902)	(-0.4030, 0.3729)
AGES 63-84						
Main Effects						
Summary Index Measure (SIM)	0.1631 (0.5101)	(-1.148, 1.474)	1.036 (0.6495)	(-0.5003, 2.571)	-0.0171 (0.3228)	(-0.8069, 0.7727)
Personality Trait Scales						
Openness to Experience (n=280)	-0.0508 (0.1563)	(-0.4524, 0.3509)				
Agreeableness (n=288)			-0.0148 (0.1532)	(-0.3772, 0.3475)		
Agency (n=283)					0.0318 (0.1009)	(-0.2151, 0.2788)
Interactions						
Personality Trait Scales						

SIM x Openness to Experience	-0.0571 (0.1651)	(-0.4816, 0.3674)				
SIM x Agreeableness			-0.2889 (0.1841)	(-0.7242, 0.1463)		
SIM x Agency					0.0041 (0.1141)	(-0.2750, 0.2832)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + gender + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.42a: Examining, individually, the moderating role of autonomy, environmental mastery and personal growth, from the psychological well-being scales, by gender, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Autonomy		Model 2: Environmental Mastery		Model 3: Personal Growth	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
FEMALE						
Main Effects						
Summary Index Measure (SIM)	0.5212 (0.2557)	(0.0070, 1.035)	0.4887 (0.2255)	(0.0353, 0.9422)	0.2114 (0.2711)	(-0.3337, 0.7565)
Psychological Well-Being Scales						
Autonomy (n=664)	0.0082 (0.0061)	(-0.0042, 0.0205)				
Environmental Mastery (n=666)			-0.0020 (0.0062)	(-0.0144, 0.0105)		
Personal Growth (n=666)					-0.0134 (0.0069)	(-0.0273, 0.0005)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	-0.0098 (0.0069)	(-0.0238, 0.0042)				
SIM x Environmental Mastery			-0.0095 (0.0060)	(-0.0215, 0.0026)		
SIM x Personal Growth					-0.0021 (0.0068)	(-0.0159, 0.0116)
MALE						
Main Effects						
Summary Index Measure (SIM)	0.3433 (0.2950)	(-0.2765, 0.9631)	-0.0249 (0.2776)	(-0.6082, 0.5584)	0.1324 (0.2938)	(-0.4848, 0.7497)
Psychological Well-Being Scales						
Autonomy (n=513)	0.0181 (0.0072)	(0.0030, 0.0332)				
Environmental Mastery (n=516)			0.0144 (0.0075)	(-0.0013, 0.0301)		
Personal Growth (n=516)					0.0030 (0.0073)	(-0.0123, 0.0183)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	-0.0064 (0.0075)	(-0.0221, 0.0092)				
SIM x Environmental Mastery			0.0039 (0.0070)	(-0.0107, 0.0186)		
SIM x Personal Growth					-0.0015 (0.0074)	(-0.0171, 0.0141)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.42b: Examining, individually, the moderating role of positive relations with others, purpose in life and self-acceptance, from the psychological well-being scales, by gender, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 4: Positive Relations with Others		Model 5: Purpose in Life		Model 6: Self-Acceptance	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
FEMALE						
Main Effects						
Summary Index Measure (SIM)	0.4393 (0.2761)	(-0.1157, 0.9944)	0.3033 (0.2754)	(-0.2505, 0.8571)	0.3213 (0.2203)	(-0.1216, 0.7642)
Psychological Well-Being Scales						
Positive Relations with Others (n=666)	0.0027 (0.0069)	(-0.0111, 0.0166)				
Purpose in Life (n=666)			-0.0013 (0.0069)	(-0.0152, 0.0127)		
Self-Acceptance (n=666)					-0.0081 (0.0061)	(-0.0204, 0.0042)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	-0.0071 (0.0067)	(-0.0206, 0.0065)				
SIM x Purpose in Life			-0.0039 (0.0069)	(-0.0178, 0.0099)		
SIM x Self-Acceptance					-0.0054 (0.0057)	(-0.0169, 0.0061)
MALE						
Main Effects						
Summary Index Measure (SIM)	0.3855 (0.2912)	(-0.2262, 0.9973)	0.0281 (0.3045)	(-0.6117, 0.6678)	0.1641 (0.2625)	(-0.3873, 0.7156)
Psychological Well-Being Scales						
Positive Relations with Others (n=516)	0.0158 (0.0070)	(0.0011, 0.0305)				
Purpose in Life (n=516)			0.0058 (0.0077)	(-0.0103, 0.0220)		
Self-Acceptance (n=516)					0.0095 (0.0066)	(-0.0043, 0.0234)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	-0.0072 (0.0071)	(-0.0222, 0.0078)				
SIM x Purpose in Life			0.0014 (0.0076)	(-0.0145, 0.0173)		
SIM x Self-Acceptance					-0.0015 (0.0065)	(-0.0152, 0.0121)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.43a: Examining, individually, the moderating role of positive reinterpretation and growth, active coping and planning, from the coping scales, by gender, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Positive Reinterpretation and Growth		Model 2: Active Coping		Model 3: Planning	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
FEMALE						
Main Effects						
Summary Index Measure (SIM)	0.4311 (0.2394)	(-0.0506, 0.9127)	0.1498 (0.2446)	(-0.3423, 0.6418)	0.4227 (0.2440)	(-0.0683, 0.9136)
Coping Scales						
Positive Reinterpretation and Growth (n=657)	-0.0185 (0.0183)	(-0.0554, 0.0184)				
Active Coping (n=658)			-0.0490 (0.0200)	(-0.0892, -0.0089)		
Planning (n=658)					-0.0134 (0.0189)	(-0.0514, 0.0246)
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	-0.0219 (0.0186)	(-0.0594, 0.0156)				
SIM x Active Coping			-0.0005 (0.0187)	(-0.0381, 0.0372)		
SIM x Planning					-0.0205 (0.0183)	(-0.0574, 0.0163)
MALE						
Main Effects						
Summary Index Measure (SIM)	0.2078 (0.2462)	(-0.3094, 0.7250)	-0.1186 (0.3119)	(-0.7739, 0.5367)	-0.1819 (0.2773)	(-0.7645, 0.4007)
Coping Scales						
Positive Reinterpretation and Growth (n=516)	0.0290 (0.0174)	(-0.0076, 0.0657)				
Active Coping (n=516)			0.0251 (0.0211)	(-0.0192, 0.0695)		
Planning (n=516)					0.0173 (0.0193)	(-0.0233, 0.0578)
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	-0.0105 (0.0193)	(-0.0511, 0.0301)				
SIM x Active Coping			0.0160 (0.0245)	(-0.0354, 0.0674)		
SIM x Planning					0.0200 (0.0205)	(-0.0230, 0.0630)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.43b: Examining, individually, the moderating role of focus on and venting of emotions, denial and behavioral disengagement, from the coping scales, by gender, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 4: Focus on and Venting of Emotions		Model 5: Denial		Model 6: Behavioral Disengagement	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
FEMALE						
Main Effects						
Summary Index Measure (SIM)	0.2771 (0.1673)	(-0.0595, 0.6136)	0.2714 (0.1426)	(-0.0154, 0.5582)	0.2752 (0.1522)	(-0.0309, 0.5814)
Coping Scales						
Focus on and Venting of Emotions (n=658)	-0.0156 (0.0147)	(-0.0451, 0.0139)				
Denial (n=658)			-0.0310 (0.0219)	(-0.0750, 0.0131)		
Behavioral Disengagement (n=658)					-0.0176 (0.0182)	(-0.0543, 0.0190)
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	-0.0101 (0.0152)	(-0.0407, 0.0205)				
SIM x Denial			-0.0162 (0.0208)	(-0.0581, 0.0256)		
SIM x Behavioral Disengagement					-0.0151 (0.0194)	(-0.0542, 0.0239)
MALE						
Main Effects						
Summary Index Measure (SIM)	-0.2782 (0.1645)	(-0.6237, 0.0673)	0.0051 (0.1580)	(-0.3268, 0.3371)	0.0617 (0.1665)	(-0.2880, 0.4114)
Coping Scales						
Focus on and Venting of Emotions (n=516)	-0.0090 (0.0174)	(-0.0456, 0.0276)				
Denial (n=516)			-0.0116 (0.0244)	(-0.0628, 0.0396)		
Behavioral Disengagement (n=515)					-0.0399 (0.0212)	(-0.0844, 0.0046)
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	0.0410 (0.0190)	**(0.0011, 0.0809)***				
SIM x Denial			0.0112 (0.0249)	(-0.0411, 0.0636)		
SIM x Behavioral Disengagement					0.0037 (0.0235)	(-0.0456, 0.0530)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.43c: Examining, individually, the moderating role of using food to cope, problem focused coping and emotion focused coping, from the coping scales, by gender, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 7: Using Food to Cope		Model 8: Problem Focused Coping		Model 9: Emotion Focused Coping	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
FEMALE						
Main Effects						
Summary Index Measure (SIM)	0.3196 (0.1182)	(0.0819, 0.5573)	0.3820 (0.2839)	(-0.1892, 0.9532)	0.3756 (0.2163)	(-0.0596, 0.8108)
Coping Scales						
Using Food to Cope (n=658)	0.0805 (0.0212)	(0.0379, 0.1231)				
Problem Focused Coping (n=657)			-0.0118 (0.0076)	(-0.0272, 0.0035)		
Emotion Focused Coping (n=658)					-0.0135 (0.0081)	(-0.0298, 0.0027)
Interactions						
Coping Scales						
SIM x Using Food to Cope	-0.0441 (0.0216)	**(-0.0876, -0.0006)***				
SIM x Problem Focused Coping			-0.0061 (0.0073)	(-0.0207, 0.0085)		
SIM x Emotion Focused Coping					-0.0084 (0.0087)	(-0.0259, 0.0091)
MALE						
Main Effects						
Summary Index Measure (SIM)	-0.1999 (0.1085)	(-0.4279, 0.0280)	-0.0339 (0.3140)	(-0.6935, 0.6257)	-0.2224 (0.2146)	(-0.6733, 0.2286)
Coping Scales						
Using Food to Cope (n=516)	0.0344 (0.0267)	(-0.0217, 0.0904)				
Problem Focused Coping (n=516)			0.0110 (0.0075)	(-0.0047, 0.0267)		
Emotion Focused Coping (n=516)					-0.0139 (0.0095)	(-0.0339, 0.0061)
Interactions						
Coping Scales						
SIM x Using Food to Cope	0.0706 (0.0271)	**(0.0138, 0.1274)***				
SIM x Problem Focused Coping			0.0031 (0.0081)	(-0.0139, 0.0201)		
SIM x Emotion Focused Coping					0.0146 (0.0101)	(-0.0067, 0.0358)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.44a: Examining, individually, the moderating role of neuroticism, extraversion and conscientiousness, from the personality trait scales, by gender, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Neuroticism		Model 2: Extraversion		Model 3: Conscientiousness (v1)		Model 4: Conscientiousness (v2)	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
FEMALE								
Main Effects								
Summary Index Measure (SIM)	0.1549 (0.1724)	(-0.1917, 0.5015)	0.2976 (0.2096)	(-0.1238, 0.7190)	0.7013 (0.3716)	(-0.0458, 1.448)	0.6989 (0.3671)	(-0.0391, 1.437)
Personality Trait Scales								
Neuroticism (n=663)	0.0268 (0.0669)	(-0.1077, 0.1613)						
Extraversion (n=663)			-0.1596 (0.0703)	(-0.3009, -0.0183)				
Conscientiousness (v1) (n=666)					-0.1581 (0.0942)	(-0.3475, 0.0314)		
Conscientiousness (v2) (n=666)							-0.1557 (0.0972)	(-0.3511, 0.0397)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	-0.0026 (0.0715)	(-0.1463, 0.1411)						
SIM x Extraversion			-0.0545 (0.0663)	(-0.1879, 0.0788)				
SIM x Conscientiousness (v1)					-0.1637 (0.1091)	(-0.3831, 0.0556)		
SIM x Conscientiousness (v2)							-0.1661 (0.1096)	(-0.3865, 0.0544)
MALE								
Main Effects								
Summary Index Measure (SIM)	0.0699 (0.1649)	(-0.2766, 0.4164)	0.0129 (0.2475)	(-0.5071, 0.5329)	-0.2649 (0.3671)	(-1.036, 0.5063)	-0.4581 (0.3777)	(-1.252, 0.3354)
Personality Trait Scales								
Neuroticism (n=513)	0.0235 (0.0716)	(-0.1268, 0.1738)						
Extraversion (n=513)			0.2500 (0.0800)	(0.0819, 0.4181)				
Conscientiousness (v1) (n=516)					-0.0483 (0.1030)	(-0.2646, 0.1681)		
Conscientiousness (v2) (n=516)							-0.0101 (0.1032)	(-0.2268, 0.2067)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	-0.0025 (0.0776)	(-0.1655, 0.1604)						
SIM x Extraversion			0.0281 (0.0793)	(-0.1384, 0.1946)				
SIM x Conscientiousness (v1)					0.0968 (0.1079)	(-0.1298, 0.3235)		
SIM x Conscientiousness (v2)							0.1575 (0.1124)	(-0.0786, 0.3936)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.44b: Examining, individually, the moderating role of openness to experience, agreeableness and agency, from the personality trait scales, by gender, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 5: Openness to Experience		Model 6: Agreeableness		Model 7: Agency	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
FEMALE						
Main Effects						
Summary Index Measure (SIM)	0.4959 (0.2233)	(0.0466, 0.9452)	0.3901 (0.2828)	(-0.1785, 0.9588)	0.3889 (0.1645)	(0.0582, 0.7195)
Personality Trait Scales						
Openness to Experience (n=660)	-0.1747 (0.0775)	(-0.3306, -0.0187)				
Agreeableness (n=666)			0.1077 (0.0831)	(-0.0593, 0.2748)		
Agency (n=662)					-0.0316 (0.0594)	(-0.1510, 0.0879)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	-0.1199 (0.0750)	(-0.2707, 0.0310)				
SIM x Agreeableness			-0.0640 (0.0811)	(-0.2271, 0.0990)		
SIM x Agency					-0.0928 (0.0616)	(-0.2167, 0.0310)
MALE						
Main Effects						
Summary Index Measure (SIM)	-0.2738 (0.2526)	(-0.8045, 0.2568)	-0.3227 (0.2965)	(-0.9455, 0.3001)	-0.3033 (0.2109)	(-0.7463, 0.1398)
Personality Trait Scales						
Openness to Experience (n=509)	0.0777 (0.0889)	(-0.1090, 0.2644)				
Agreeableness (n=516)			0.1993 (0.0882)	(0.0141, 0.3845)		
Agency (n=513)					0.1613 (0.0698)	(0.0147, 0.3079)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	0.1151 (0.0853)	(-0.0641, 0.2942)				
SIM x Agreeableness			0.1245 (0.0893)	(-0.0631, 0.3121)		
SIM x Agency					0.1424 (0.0781)	(-0.0216, 0.3064)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + race/ethnicity + family-adjusted poverty to income ratio + educational attainment + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.45a: Examining, individually, the moderating role of autonomy, environmental mastery and personal growth, from the psychological well-being scales, by educational attainment, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Autonomy		Model 2: Environmental Mastery		Model 3: Personal Growth	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
<HS DIPLOMA / GED						
Main Effects						
Summary Index Measure (SIM)	0.7636 (0.3293)	(-3.420, 4.947)	-0.0522 (0.2850)	(-3.673, 3.569)	0.0994 (0.3288)	(-4.079, 4.278)
Psychological Well-Being Scales						
Autonomy (n=325)	0.0177 (0.0089)	(-0.0957, 0.1311)				
Environmental Mastery (n=328)			0.0084 (0.0095)	(-0.1122, 0.1291)		
Personal Growth (n=328)					-0.0114 (0.0093)	(-0.1293, 0.1064)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	-0.0176 (0.0088)	(-0.1298, 0.0947)				
SIM x Environmental Mastery			0.0055 (0.0078)	(-0.0934, 0.1044)		
SIM x Personal Growth					-0.0006 (0.0087)	(-0.1112, 0.1101)
SOME COLLEGE / AA						
Main Effects						
Summary Index Measure (SIM)	0.0470 (0.2888)	(-0.7549, 0.8489)	-0.1083 (0.2854)	(-0.9007, 0.6841)	-0.2471 (0.3439)	(-1.202, 0.7076)
Psychological Well-Being Scales						
Autonomy (n=347)	0.0164 (0.0077)	(-0.0050, 0.0378)				
Environmental Mastery (n=348)			0.0013 (0.0080)	(-0.0210, 0.0236)		
Personal Growth (n=348)					-0.0053 (0.0096)	(-0.0319, 0.0212)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	0.0040 (0.0077)	(-0.0175, 0.0254)				
SIM x Environmental Mastery			0.0079 (0.0076)	(-0.0132, 0.0289)		
SIM x Personal Growth					0.0106 (0.0089)	(-0.0141, 0.0323)
BA / BS +						
Main Effects						
Summary Index Measure (SIM)	0.4119 (0.2760)	(-0.1490, 0.9729)	0.9183 (0.2839)	(0.3414,1.495)	0.5733 (0.3425)	(-0.1227, 1.269)
Psychological Well-Being Scales						
Autonomy (n=505)	0.0088 (0.0068)	(-0.0050, 0.0227)				
Environmental Mastery (n=506)			0.0066 (0.0072)	(-0.0082, 0.0213)		
Personal Growth (n=506)					-0.0013 (0.0071)	(-0.0156, 0.0130)
Interactions						
Psychological Well-Being Scales						
SIM x Autonomy	-0.0082 (0.0074)	(-0.0232, 0.0068)				
SIM x Environmental Mastery			-0.0210 (0.0072)	**(-0.0355, -0.0064)****		
SIM x Personal Growth					-0.0120 (0.0083)	(-0.0288, 0.0049)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.45b: Examining, individually, the moderating role of positive relations with others, purpose in life and self-acceptance, from the psychological well-being scales, by educational attainment, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 4: Positive Relations with Others		Model 5: Purpose in Life		Model 6: Self-Acceptance	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
<HS DIPLOMA / GED						
Main Effects						
Summary Index Measure (SIM)	-0.0112 (0.3328)	(-4.240, 4.217)	0.2300 (0.3268)	(-3.923, 4.383)	0.1638 (0.2765)	(-3.349, 3.677)
Psychological Well-Being Scales						
Positive Relations with Others (n=328)	0.0013 (0.0097)	(-0.1220, 0.1246)				
Purpose in Life (n=328)			0.0012 (0.0090)	(-0.1135, 0.1159)		
Self-Acceptance (n=328)					0.0050 (0.0084)	(-0.1019, 0.1118)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	0.0032 (0.0084)	(-0.1029, 0.1093)				
SIM x Purpose in Life			-0.0033 (0.0085)	(-0.1113, 0.1047)		
SIM x Self-Acceptance					-0.0011 (0.0074)	(-0.0955, 0.0932)
SOME COLLEGE / AA						
Main Effects						
Summary Index Measure (SIM)	0.0157 (0.3284)	(-0.8962, 0.9275)	-0.5267 (0.3352)	(-1.457, 0.4040)	-0.1842 (0.2513)	(-0.8818, 0.5134)
Psychological Well-Being Scales						
Positive Relations with Others (n=348)	0.0071 (0.0093)	(-0.0186, 0.0328)				
Purpose in Life (n=348)			0.0002 (0.0095)	(-0.0261, 0.0265)		
Self-Acceptance (n=348)					-0.0065 (0.0076)	(-0.0277, 0.0148)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	0.0045 (0.0080)	(-0.0178, 0.0268)				
SIM x Purpose in Life			0.0183 (0.0085)	(-0.0052, 0.0418)		
SIM x Self-Acceptance					0.0093 (0.0067)	(-0.0093, 0.0278)
BA / BS +						
Main Effects						
Summary Index Measure (SIM)	0.9613 (0.3315)	(0.2876, 1.635)	0.7068 (0.3196)	(0.0573,1.356)	0.7299 (0.2935)	(0.1334, 1.326)
Psychological Well-Being Scales						
Positive Relations with Others (n=506)	0.0123 (0.0072)	(-0.0025, 0.0270)				
Purpose in Life (n=506)			0.0023 (0.0077)	(-0.0134, 0.0181)		
Self-Acceptance (n=506)					-0.0015 (0.0068)	(-0.0152, 0.0123)
Interactions						
Psychological Well-Being Scales						
SIM x Positive Relations with Others	-0.0209 (0.0081)	**(-0.0372, -0.0045)***				
SIM x Purpose in Life			-0.0153 (0.0079)	(-0.0313, 0.0007)		
SIM x Self-Acceptance					-0.0164 (0.0072)	**(-0.0310, -0.0017)***

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.46a: Examining, individually, the moderating role of positive reinterpretation and growth, active coping and planning, from the coping scales, by educational attainment, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Positive Reinterpretation and Growth		Model 2: Active Coping		Model 3: Planning	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
< HS DIPLOMA / GED						
Main Effects						
Summary Index Measure (SIM)	0.3112 (0.3578)	X	0.2395 (0.3384)	X	0.2645 (0.3320)	X
Coping Scales						
Positive Reinterpretation and Growth (n=323)	-0.0004 (0.0280)	X				
Active Coping (n=323)			-0.0259 (0.0278)	X		
Planning (n=323)					0.0091 (0.0259)	X
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	-0.0150 (0.0279)	X				
SIM x Active Coping			-0.0105 (0.0268)	X		
SIM x Planning					-0.0112 (0.0256)	X
SOME COLLEGE / AA						
Main Effects						
Summary Index Measure (SIM)	-0.0153 (0.2599)	(-0.7368, 0.7062)	-0.4656 (0.2764)	(-1.233, 0.3018)	-0.1522 (0.2617)	(-0.8788, 0.5743)
Coping Scales						
Positive Reinterpretation and Growth (n=345)	-0.0255 (0.0238)	(-0.0914, 0.0405)				
Active Coping (n=345)			-0.0342 (0.0260)	(-0.1064, 0.0380)		
Planning (n=345)					-0.0058 (0.0237)	(-0.0717, 0.0601)
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	0.0135 (0.0207)	(-0.0439, 0.0710)				
SIM x Active Coping			0.0507 (0.0227)	(-0.0124, 0.1138)		
SIM x Planning					0.0251 (0.0202)	(-0.0311, 0.0813)
BA / BS +						
Main Effects						
Summary Index Measure (SIM)	0.5693 (0.2664)	(0.0280, 1.111)	0.3148 (0.3156)	(-0.3266, 0.9562)	0.2783 (0.3137)	(-0.3591, 0.9158)
Coping Scales						
Positive Reinterpretation and Growth (n=505)	0.0270 (0.0168)	(-0.0072, 0.0612)				
Active Coping (n=506)			0.0146 (0.0204)	(-0.0268, 0.0561)		
Planning (n=506)					0.0102 (0.0190)	(-0.0284, 0.0489)
Interactions						
Coping Scales						
SIM x Positive Reinterpretation and Growth	-0.0368 (0.0206)	(-0.0786, 0.0051)				
SIM x Active Coping			-0.0170 (0.0238)	(-0.0653, 0.0312)		
SIM x Planning					-0.0138 (0.0228)	(-0.0602, 0.0325)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.46b: Examining, individually, the moderating role of focus on and venting of emotions, denial and behavioral disengagement, from the coping scales, by educational attainment, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 4: Focus on and Venting of Emotions		Model 5: Denial		Model 6: Behavioral Disengagement	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
< HS DIPLOMA / GED						
Main Effects						
Summary Index Measure (SIM)	0.1415 (0.1945)	X	0.0937 (0.2238)	X	0.0618 (0.2210)	X
Coping Scales						
Focus on and Venting of Emotions (n=323)	0.0215 (0.0240)	X				
Denial (n=323)			0.0143 (0.0315)	X		
Behavioral Disengagement (n=322)					-0.0369 (0.0287)	X
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	-0.0036 (0.0199)	X				
SIM x Denial			0.0030 (0.0305)	X		
SIM x Behavioral Disengagement					0.0100 (0.0287)	X
SOME COLLEGE / AA						
Main Effects						
Summary Index Measure (SIM)	0.0664 (0.1838)	(-0.4439, 0.5768)	0.3879 (0.1768)	(-0.1031, 0.8789)	0.4352 (0.1798)	(-0.0639, 0.9343)
Coping Scales						
Focus on and Venting of Emotions (n=345)	-0.0024 (0.0190)	(-0.0551, 0.0504)				
Denial (n=345)			-0.0161 (0.0263)	(-0.0890, 0.0569)		
Behavioral Disengagement (n=345)					-0.0220 (0.0244)	(-0.0898, 0.0457)
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	0.0105 (0.0180)	(-0.0395, 0.0606)				
SIM x Denial			-0.0346 (0.0249)	(-0.1038, 0.0346)		
SIM x Behavioral Disengagement					-0.0359 (0.0227)	(-0.0990, 0.0273)
BA / BS +						
Main Effects						
Summary Index Measure (SIM)	-0.2197 (0.1782)	(-0.5820, 0.1425)	0.0240 (0.1637)	(-0.3088, 0.3567)	-0.0626 (0.1506)	(-0.3687, 0.2434)
Coping Scales						
Focus on and Venting of Emotions (n=506)	-0.0354 (0.0168)	(-0.0695, -0.0013)				
Denial (n=506)			-0.0357 (0.0243)	(-0.0850, 0.0136)		
Behavioral Disengagement (n=506)					-0.0082 (0.0191)	(-0.0469, 0.0306)
Interactions						
Coping Scales						
SIM x Focus on and Venting of Emotions	0.0351 (0.0169)	**(0.0008, 0.0695)***				
SIM x Denial			0.0136 (0.0269)	(-0.0411, 0.0683)		
SIM x Behavioral Disengagement					0.0230 (0.0207)	(-0.0190, 0.0650)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.46c: Examining, individually, the moderating role of using food to cope, problem focused coping and emotion focused coping, from the coping scales, by educational attainment, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 7: Using Food to Cope		Model 8: Problem Focused Coping		Model 9: Emotion Focused Coping	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
<HS DIPLOMA / GED						
Main Effects						
Summary Index Measure (SIM)	0.0822 (0.1511)	X	0.3198 (0.3908)	X	0.0761 (0.2864)	X
Coping Scales						
Using Food to Cope (n=323)	0.0968 (0.0318)	X				
Problem Focused Coping (n=323)			-0.0018 (0.0105)	X		
Emotion Focused Coping (n=323)					-0.0023 (0.0127)	X
Interactions						
Coping Scales						
SIM x Using Food to Cope	0.0004 (0.0288)	X				
SIM x Problem Focused Coping			-0.0054 (0.0102)	X		
SIM x Emotion Focused Coping					0.0021 (0.0118)	X
SOME COLLEGE / AA						
Main Effects						
Summary Index Measure (SIM)	0.1617 (0.1342)	(-0.2110, 0.5343)	-0.2762 (0.2922)	(-1.087, 0.5350)	0.3764 (0.2316)	(-0.2668, 1.020)
Coping Scales						
Using Food to Cope (n=345)	0.0845 (0.0323)	(-0.0052, 0.1743)				
Problem Focused Coping (n=345)			-0.0091 (0.0094)	(-0.0352, 0.0171)		
Emotion Focused Coping (n=345)					-0.0076 (0.0101)	(-0.0355, 0.0204)
Interactions						
Coping Scales						
SIM x Using Food to Cope	-0.0101 (0.0297)	(-0.0927, 0.0725)				
SIM x Problem Focused Coping			0.0116 (0.0078)	(-0.0101, 0.0332)		
SIM x Emotion Focused Coping					-0.0088 (0.0094)	(-0.0349, 0.0174)
BA / BS +						
Main Effects						
Summary Index Measure (SIM)	0.0535 (0.1216)	(-0.1937, 0.3006)	0.5244 (0.3453)	(-0.1773, 1.226)	-0.2634 (0.2451)	(-0.7616, 0.2348)
Coping Scales						
Using Food to Cope (n=506)	0.0378 (0.0233)	(-0.0095, 0.0852)				
Problem Focused Coping (n=505)			0.0097 (0.0073)	(-0.0053, 0.0246)		
Emotion Focused Coping (n=506)					-0.0185 (0.0097)	(-0.0382, 0.0012)
Interactions						
Coping Scales						
SIM x Using Food to Cope	0.0043 (0.0258)	(-0.0481, 0.0567)				
SIM x Problem Focused Coping			-0.0109 (0.0087)	(-0.0285, 0.0068)		
SIM x Emotion Focused Coping					0.0173 (0.0107)	(-0.0045, 0.0390)

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

TABLE 5.47a: Examining, individually, the moderating role of neuroticism, extraversion and conscientiousness, from the personality trait scales, by educational attainment, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 1: Neuroticism		Model 2: Extraversion		Model 3: Conscientiousness (v1)		Model 4: Conscientiousness (v2)	
	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI
<HS DIPLOMA / GED								
Main Effects								
Summary Index Measure (SIM)	0.0990 (0.2322)	(-2.852, 3.050)	0.2933 (0.3062)	(-3.597, 4.183)	0.2688 (0.4644)	(-5.632, 6.170)	0.2745 (0.4749)	(-5.760, 6.309)
Personality Trait Scales								
Neuroticism (n=326)	0.0429 (0.1051)	(-1.293, 1.378)						
Extraversion (n=326)			0.0409 (0.1086)	(-1.340, 1.421)				
Conscientiousness (v1) (n=328)					-0.2667 (0.1393)	(-2.036, 1.503)		
Conscientiousness (v2) (n=328)							-0.2206 (0.1436)	(-2.045, 1.604)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	0.0001 (0.1031)	(-1.310, 1.311)						
SIM x Extraversion			-0.0594 (0.0978)	(-1.302, 1.183)				
SIM x Conscientiousness (v1)					-0.0607 (0.1346)	(-1.771, 1.649)		
SIM x Conscientiousness (v2)							-0.0611 (0.1398)	(-1.837, 1.715)
SOME COLLEGE / AA								
Main Effects								
Summary Index Measure (SIM)	0.2592 (0.1978)	(-0.2900, 0.8084)	-0.2546 (0.2832)	(-1.041, 0.5317)	-0.3219 (0.4503)	(-1.572, 0.9284)	-0.1741 (0.4521)	(-1.430, 1.081)
Personality Trait Scales								
Neuroticism (n=346)	0.1182 (0.0955)	(-0.1470, 0.3835)						
Extraversion (n=346)			-0.1387 (0.1002)	(-0.4169, 0.1395)				
Conscientiousness (v1) (n=348)					0.0258 (0.1248)	(-0.3206, 0.3722)		
Conscientiousness (v2) (n=348)							0.0328 (0.1292)	(-0.3258, 0.3915)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	-0.0525 (0.0848)	(-0.2880, 0.1830)						
SIM x Extraversion			0.1308 (0.0875)	(-0.1120, 0.3736)				
SIM x Conscientiousness (v1)					0.1447 (0.1328)	(-0.2240, 0.5133)		
SIM x Conscientiousness (v2)							0.1042 (0.1356)	(-0.2722, 0.4806)
BA / BS+								
Main Effects								
Summary Index Measure (SIM)	-0.0470 (0.1825)	(-0.4179, 0.3238)	0.4227 (0.2646)	(-0.1150, 0.9603)	0.8471 (0.3631)	(0.1091, 1.585)	0.6168 (0.3885)	(-0.1727, 1.406)
Personality Trait Scales								
Neuroticism (n=504)	0.0342 (0.0663)	(-0.1006, 0.1689)						
Extraversion (n=504)			0.1507 (0.0750)	(-0.0017, 0.3031)				
Conscientiousness (v1) (n=506)					-0.0708 (0.0910)	(-0.2558, 0.1142)		
Conscientiousness (v2) (n=506)							-0.0433 (0.0954)	(-0.2372, 0.1506)
Interactions								
Personality Trait Scales								
SIM x Neuroticism	0.0581 (0.0800)	(-0.1044, 0.2207)						
SIM x Extraversion			-0.1047 (0.0847)	(-0.2768, 0.0675)				
SIM x Conscientiousness (v1)					-0.2209 (0.1069)	**(-0.4380, -0.0037)***		
SIM x Conscientiousness (v2)							-0.1555 (0.1155)	(-0.3902, 0.0792)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

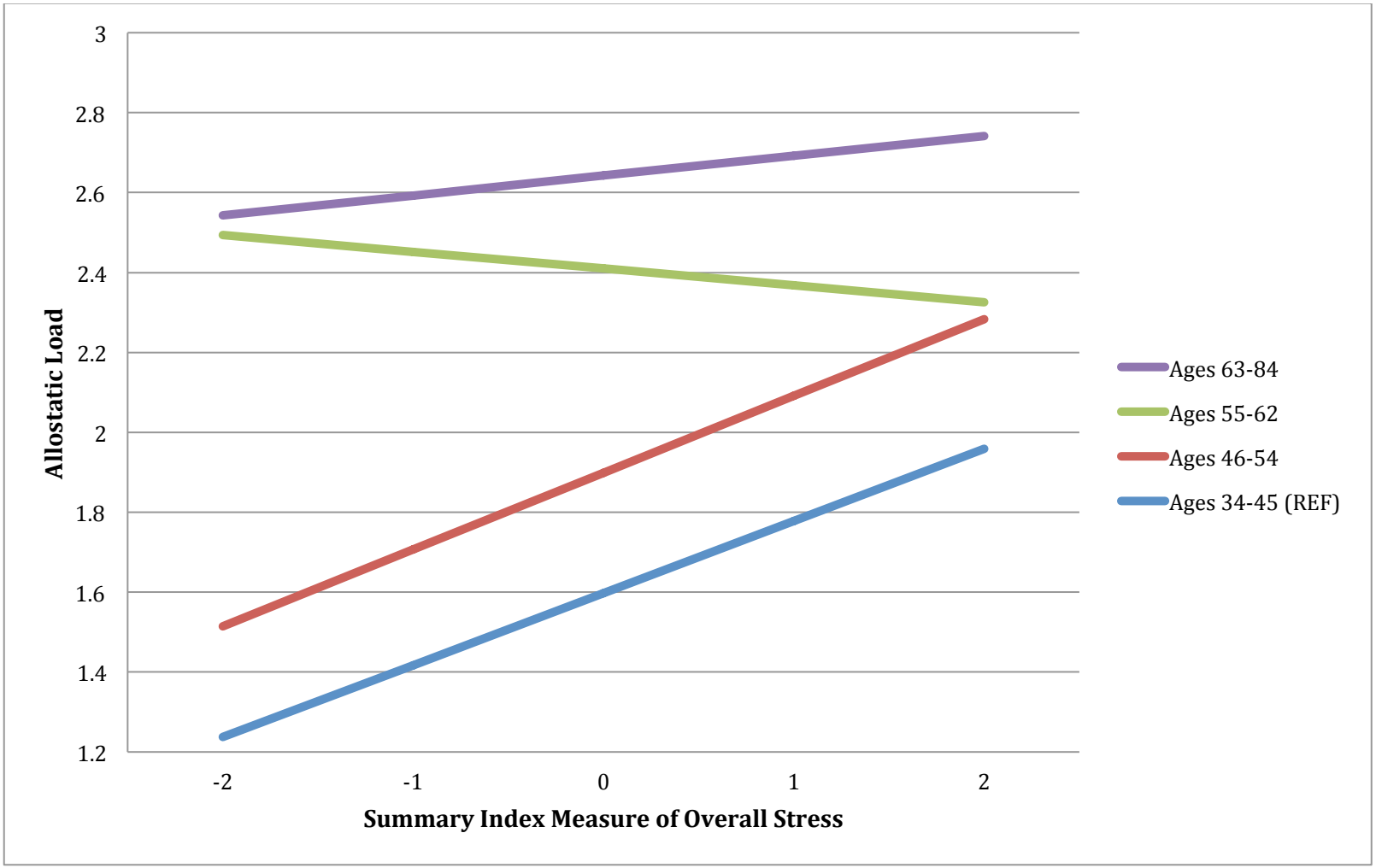
TABLE 5.47b: Examining, individually, the moderating role of openness to experience, agreeableness and agency, from the personality trait scales, by educational attainment, with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)

	Model 5: Openness to Experience		Model 6: Agreeableness		Model 7: Agency	
	Estimate (SE)	**95% CI**	**Estimate (SE)**	**95% CI**	**Estimate (SE)**	**95% CI**
<HS DIPLOMA / GED						
Main Effects						
Summary Index Measure (SIM)	0.1978 (0.3002)	(-3.616, 4.012)	-0.2881 (0.3921)	(-5.271, 4.695)	0.2610 (0.2441)	(-2.841, 3.363)
Personality Trait Scales						
Openness to Experience (n=323)	0.0767 (0.1154)	(-1.390, 1.543)				
Agreeableness (n=328)			0.1510 (0.1181)	(-1.350, 1.652)		
Agency (n=326)					0.1833 (0.1029)	(-1.125, 1.491)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	-0.0330 (0.1079)	(-1.404, 1.338)				
SIM x Agreeableness			0.1172 (0.1136)	(-1.327, 1.561)		
SIM x Agency					-0.0555 (0.0959)	(-1.275, 1.164)
SOME COLLEGE / AA						
Main Effects						
Summary Index Measure (SIM)	0.0942 (0.2688)	(-0.6522, 0.8406)	-0.1421 (0.3727)	(-1.177, 0.8927)	-0.1198 (0.2150)	(-0.7168, 0.4771
Personality Trait Scales						
Openness to Experience (n=344)	-0.1244 (0.1004)	(-0.4032, 0.1543)				
Agreeableness (n=348)			0.1526 (0.1137)	(-0.1631, 0.4684)		
Agency (n=345)					0.0372 (0.0768)	(-0.1760, 0.2504)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	0.0202 (0.0873)	(-0.2222, 0.2627)				
SIM x Agreeableness			0.0957 (0.1050)	(-0.1958, 0.3872)		
SIM x Agency					0.1123 (0.0813)	(-0.1135, 0.3382)
BA / BS+						
Main Effects						
Summary Index Measure (SIM)	0.2803 (0.3186)	(-0.3671, 0.9278)	0.8008 (0.3415)	(0.1067, 1.495)	0.1783 (0.2053)	(-0.2389, 0.5955)
Personality Trait Scales						
Openness to Experience (n=502)	-0.0218 (0.0841)	(-0.1927, 0.1491)				
Agreeableness (n=506)			0.0867 (0.0891)	(-0.0944, 0.2678)		
Agency (n=504)					0.0677 (0.0623)	(-0.0589, 0.1944)
Interactions						
Personality Trait Scales						
SIM x Openness to Experience	-0.0636 (0.1052)	(-0.2774, 0.1503)				
SIM x Agreeableness			-0.2065 (0.1007)	**(-0.4111, -0.0020)***		
SIM x Agency					-0.0348 (0.0731)	(-0.1833, 0.1137)

*p<0.05; **p<0.01; ***p<0.001

All models adjusted for data collection site + current employment status + whether or not the participant had a child(ren) + whether or not the participant was married + age + gender + race/ethnicity + family-adjusted poverty to income ratio + marital status + average number of minutes of physical activity per week + lifetime smoking status + past month alcohol use

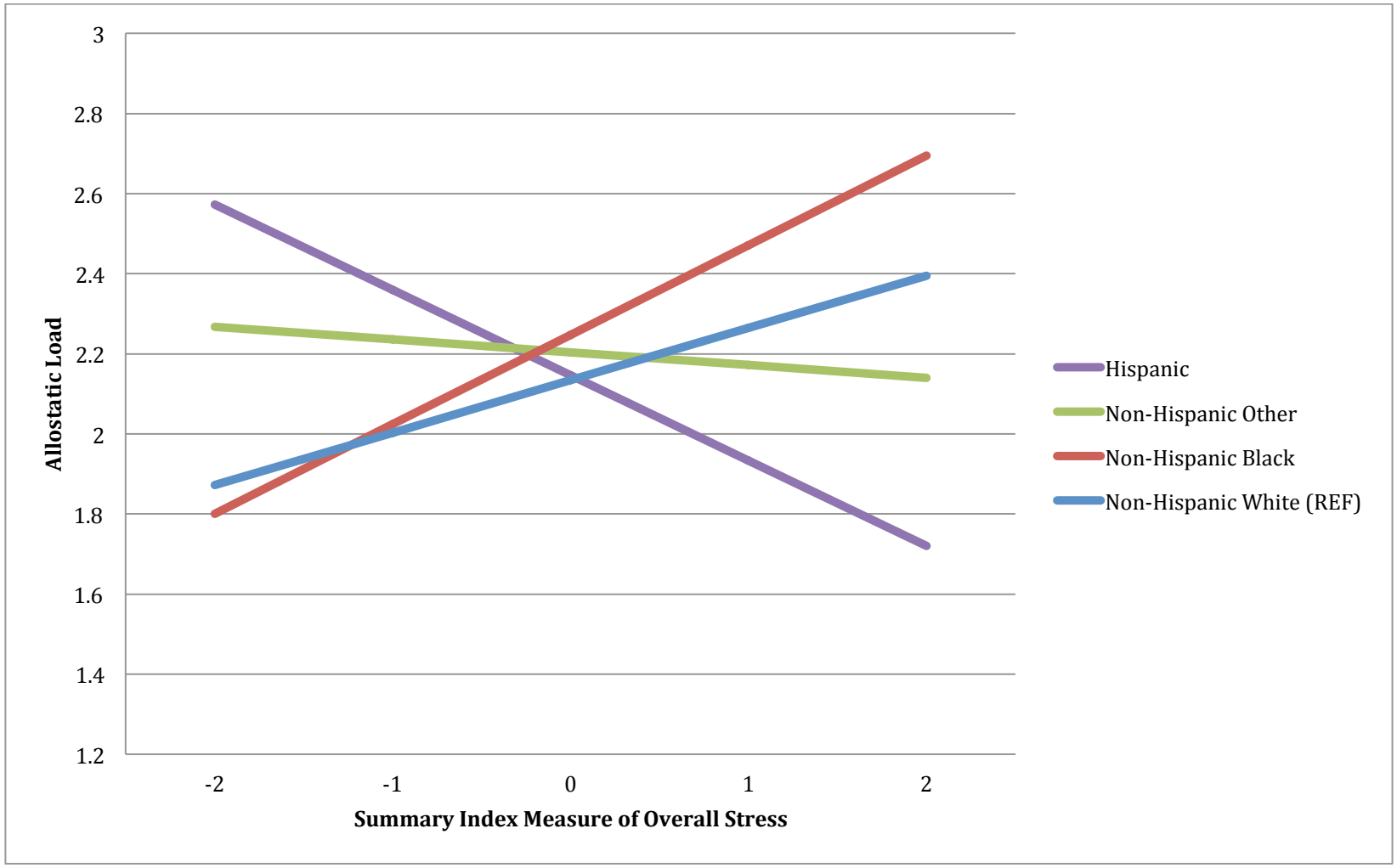
GRAPH 5.1: Examining the individual moderating role of age (measured in quartiles) with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)



*Continuous variables (summary index measure of overall stress, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero

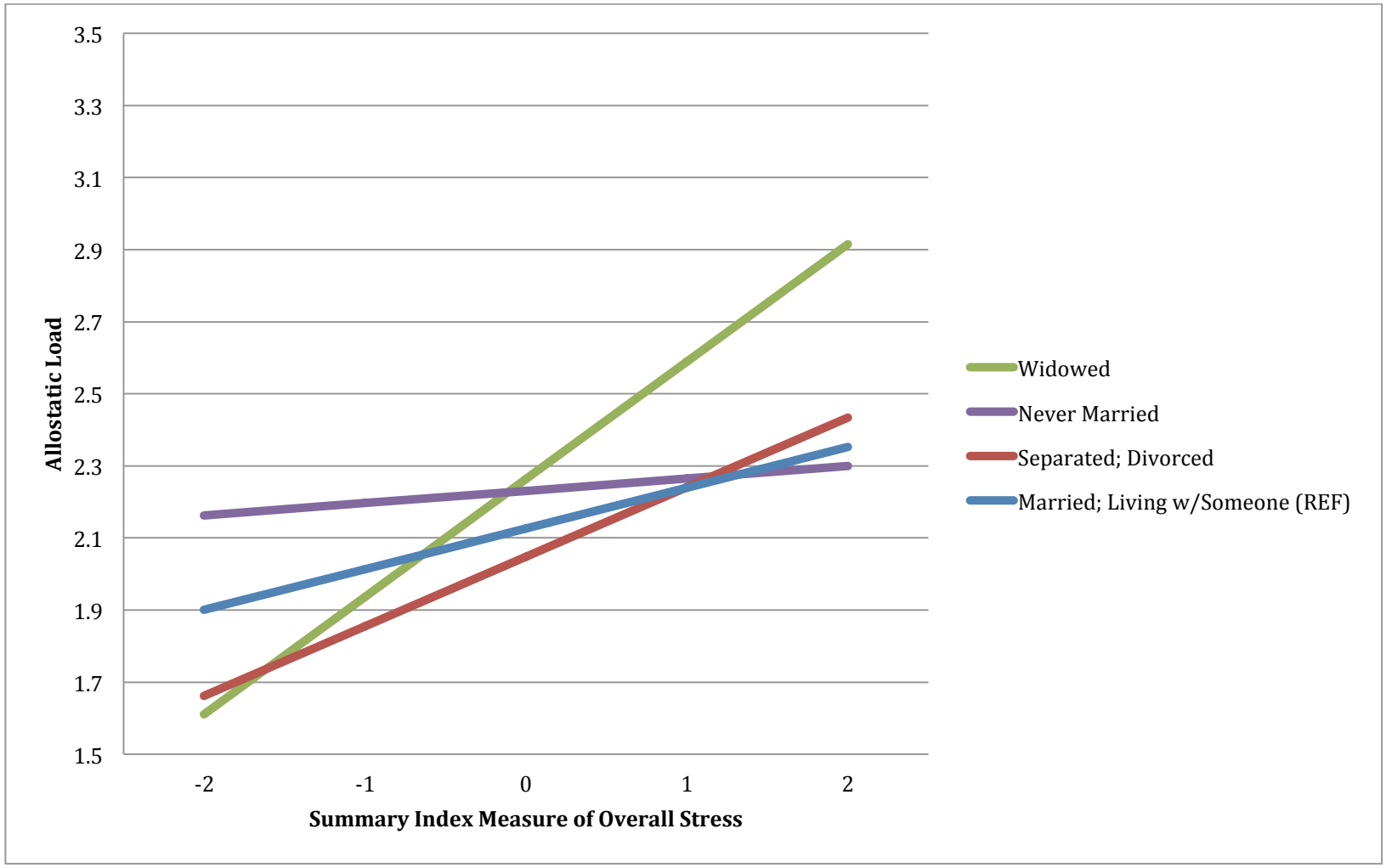
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.2: Examining the individual moderating role of race/ethnicity with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)



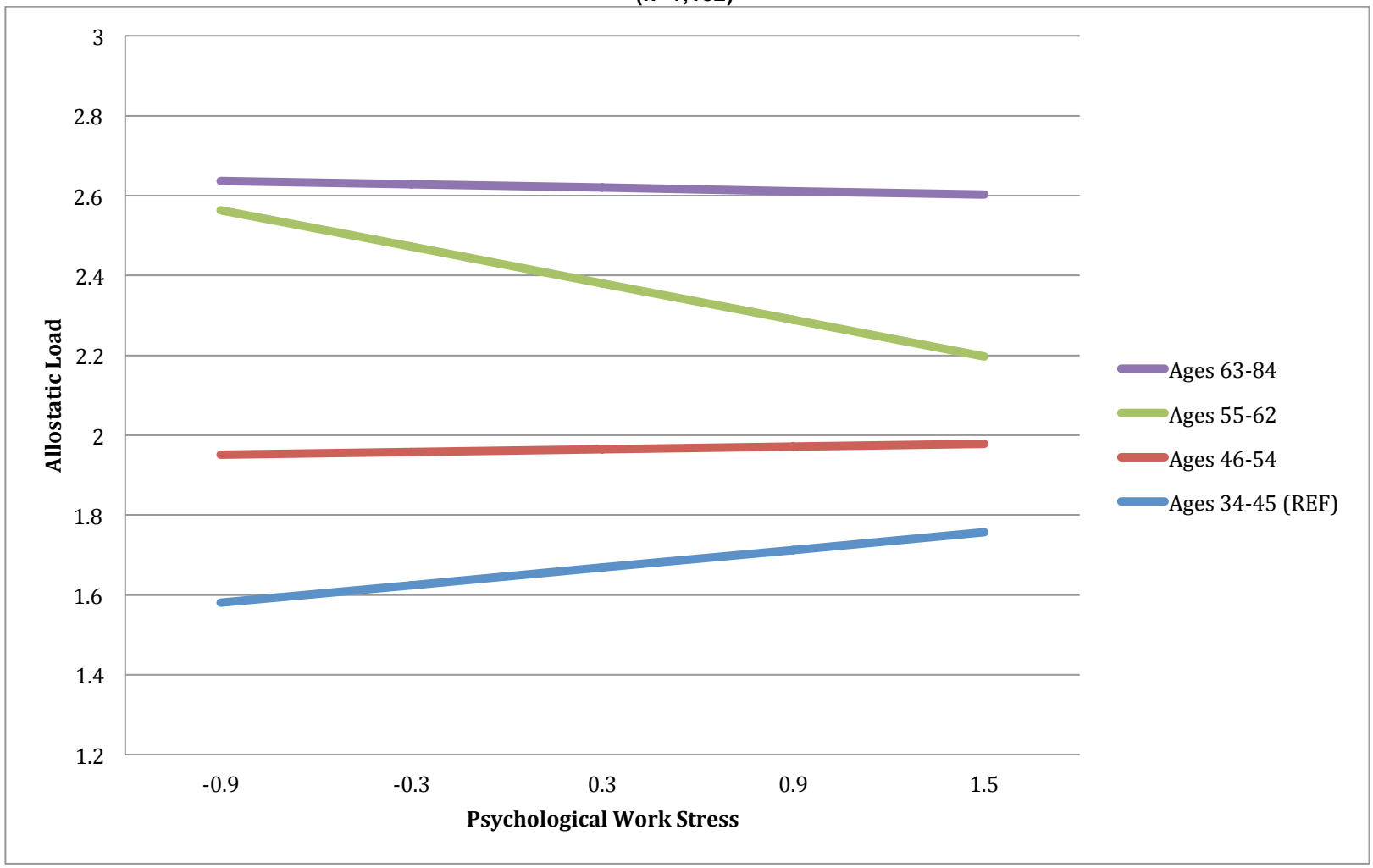
*Continuous variables (summary index measure of overall stress, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.3: Examining the individual moderating role of marital status with respect to the relationship between the summary index measure of overall stress with allostatic load among the participants in our analytic sample (n=1,182)



*Continuous variables (summary index measure of overall stress, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + never smoker + abstainer from alcohol use

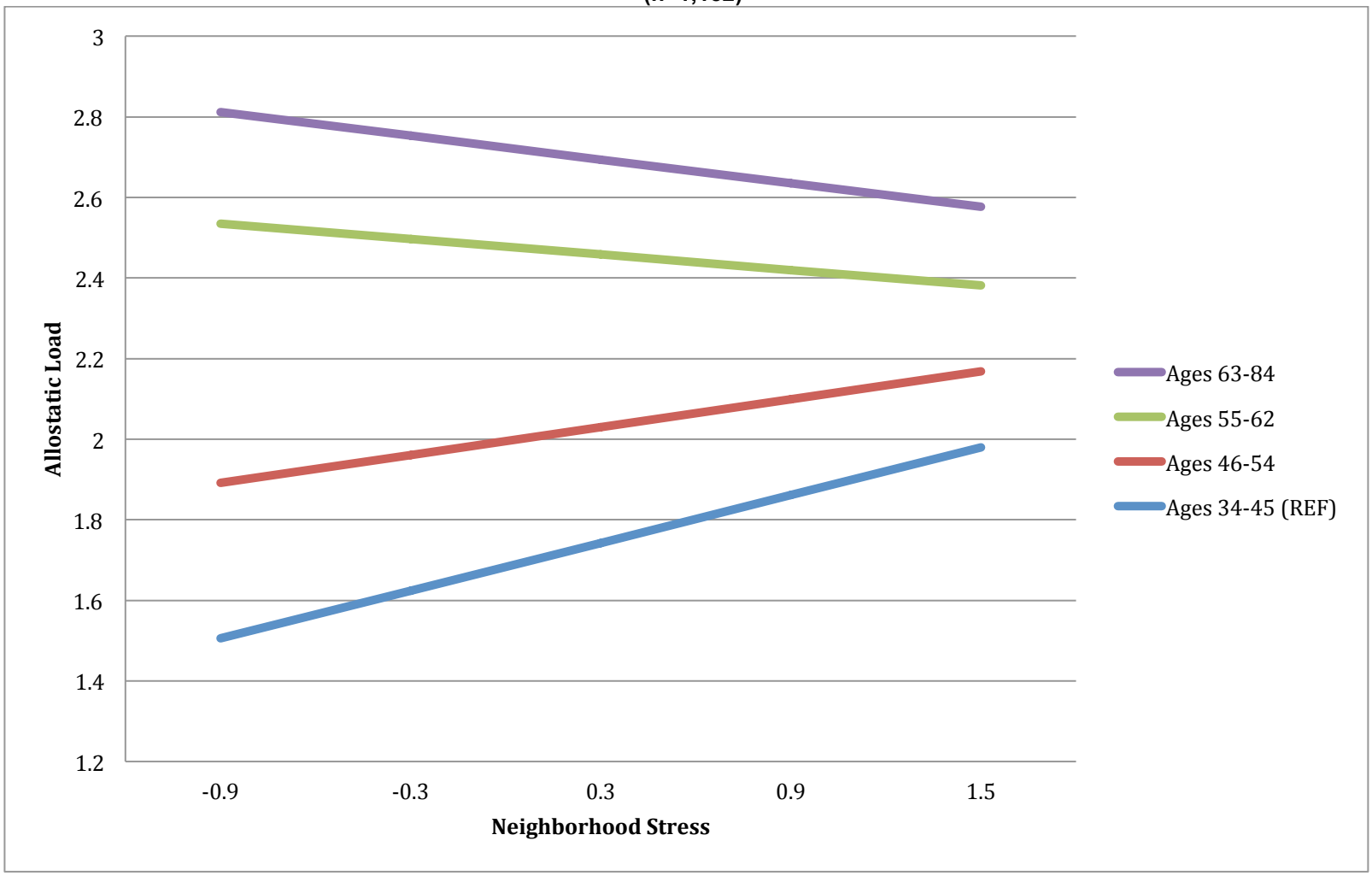
GRAPH 5.4: Examining the individual moderating role of age (measured in quartiles) with respect to the relationship between the component psychosocial stress domain, psychological work stress, with allostatic load among the participants in our analytic sample (n=1,182)



*Continuous variables (psychological work stress, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero

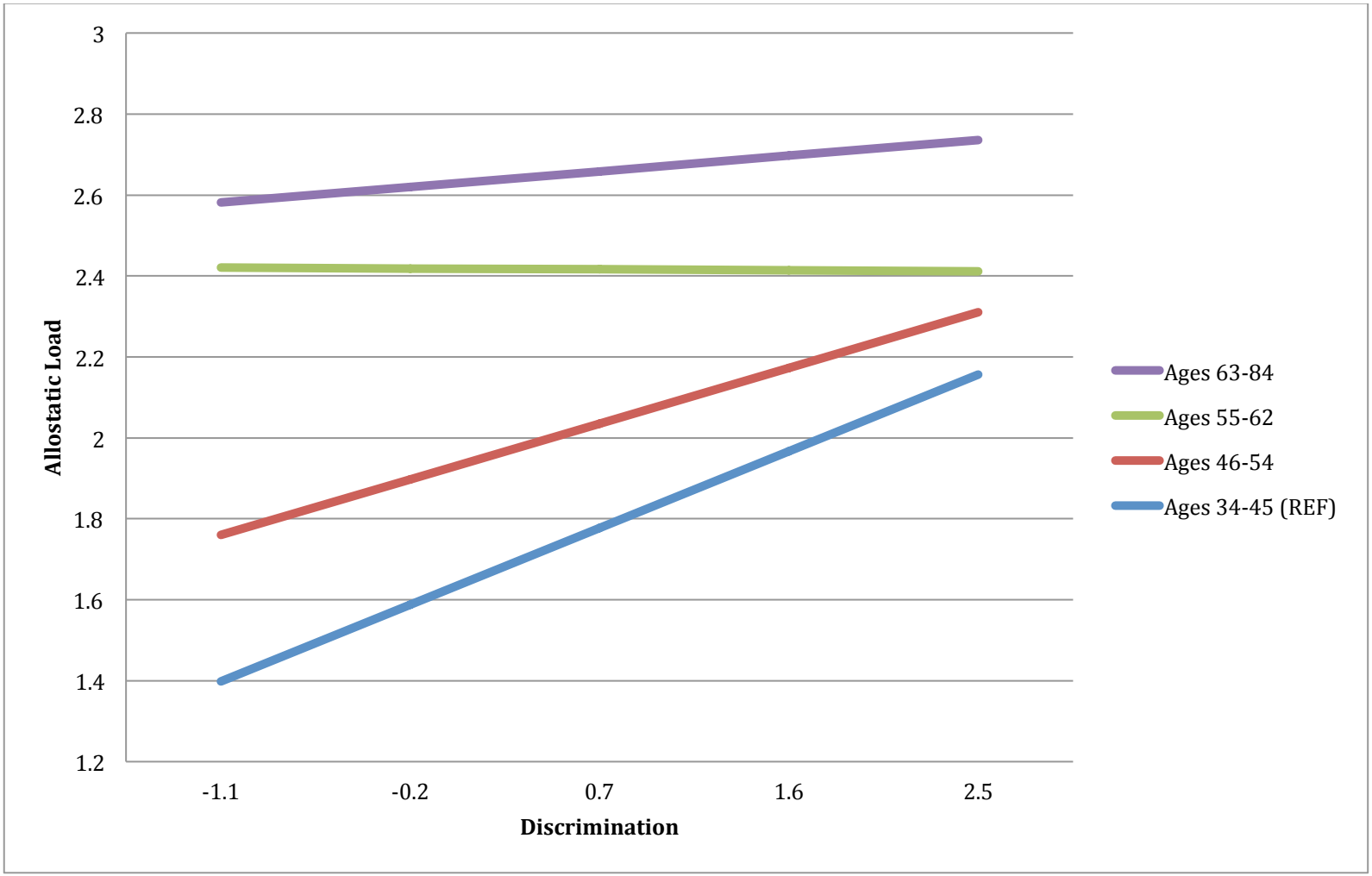
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship + never smoker + abstainer from alcohol use

GRAPH 5.5: Examining the individual moderating role of age (measured in quartiles) with respect to the relationship between the component psychosocial stress domain, neighborhood stress, with allostatic load among the participants in our analytic sample (n=1,182)



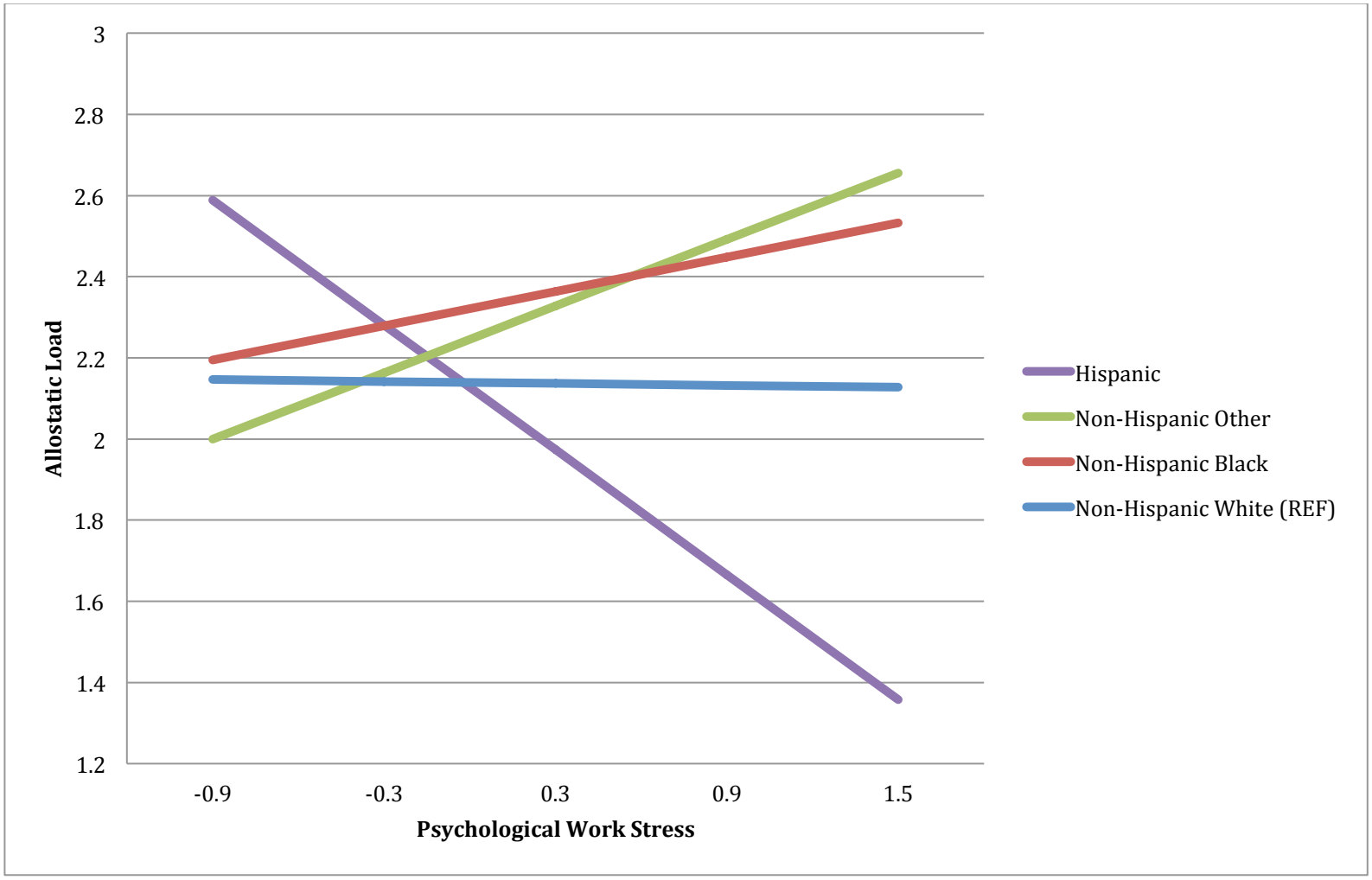
*Continuous variables (neighborhood stress, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship + never smoker + abstainer from alcohol use

GRAPH 5.6: Examining the individual moderating role of age (measured in quartiles) with respect to the relationship between the component psychosocial stress domain, discrimination, with allostatic load among the participants in our analytic sample (n=1,182)



*Continuous variables (discrimination, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship + never smoker + abstainer from alcohol use

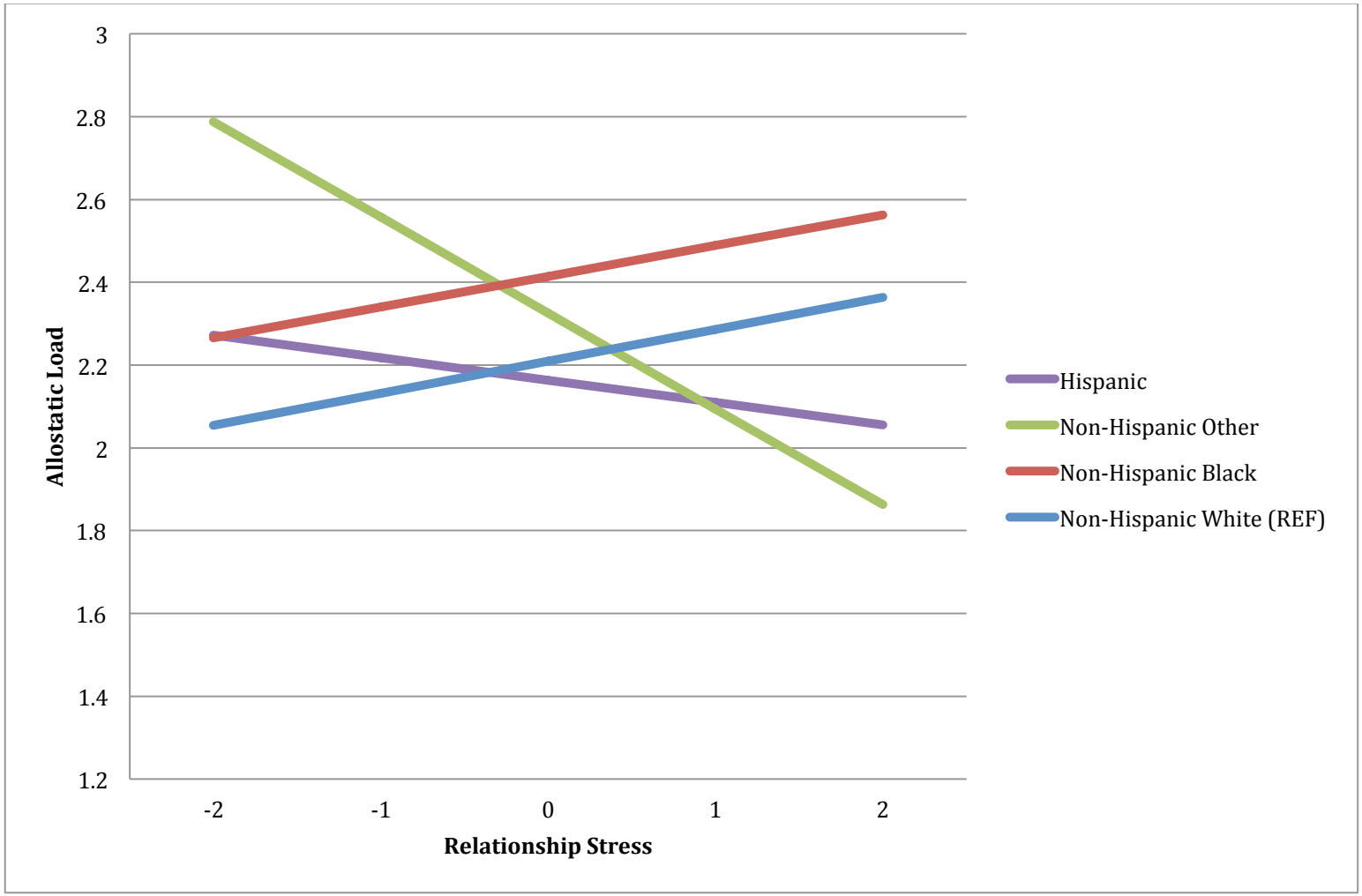
GRAPH 5.7: Examining the individual moderating role of race/ethnicity with respect to the relationship between the component psychosocial stress domain, psychological work stress, with allostatic load among the participants in our analytic sample (n=1,182)



*Continuous variables (psychological work stress, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero

*Categorical variable reference groups were data collected at UCLA + participant was currently employed + female + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship + never smoker + abstainer from alcohol use

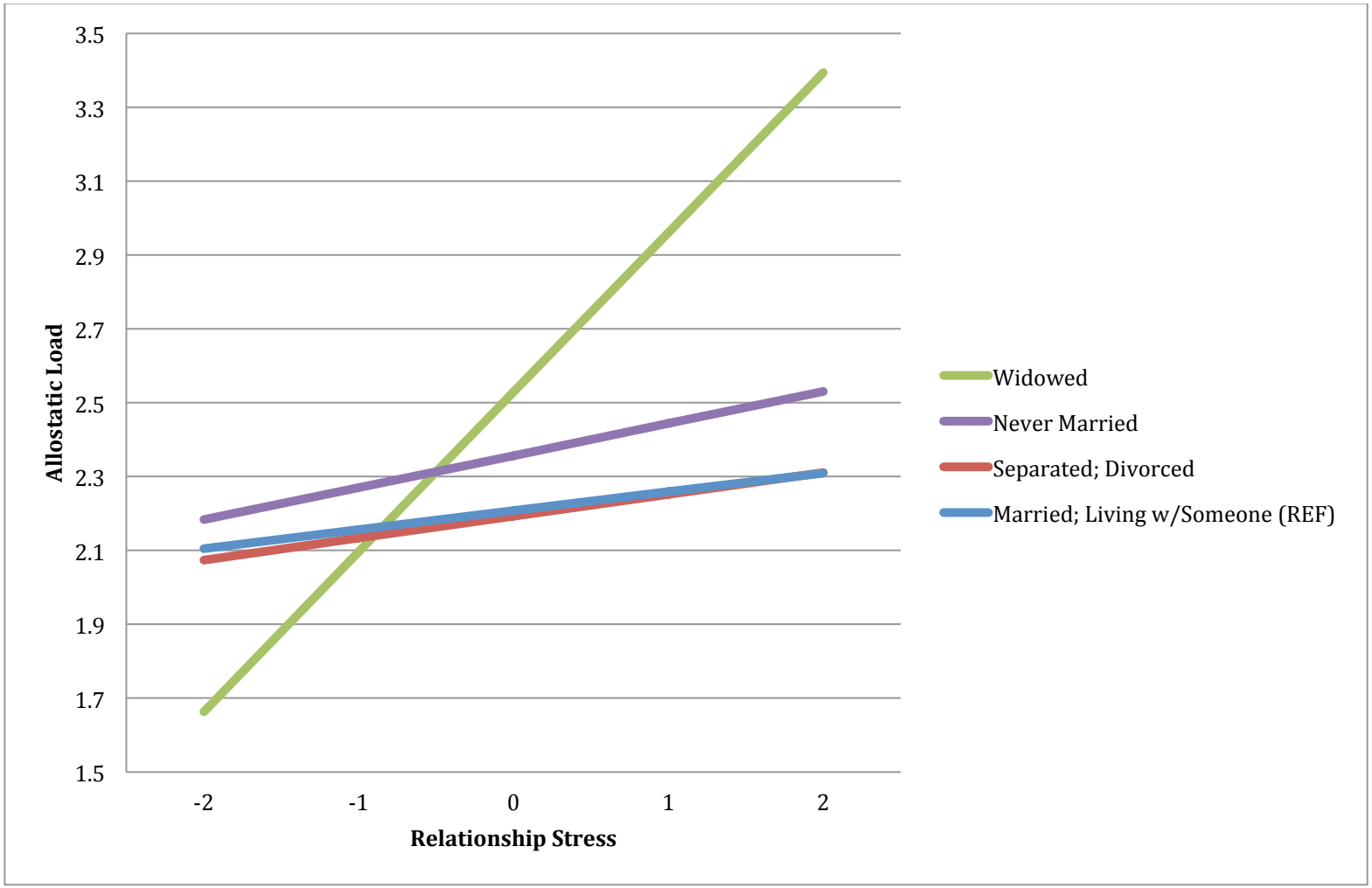
GRAPH 5.8: Examining the individual moderating role of race/ethnicity with respect to the relationship between the component psychosocial stress domain, relationship stress, with allostatic load among the participants in our analytic sample (n=1,182)



*Continuous variables (relationship stress, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero

*Categorical variable reference groups were data collected at UCLA + female + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

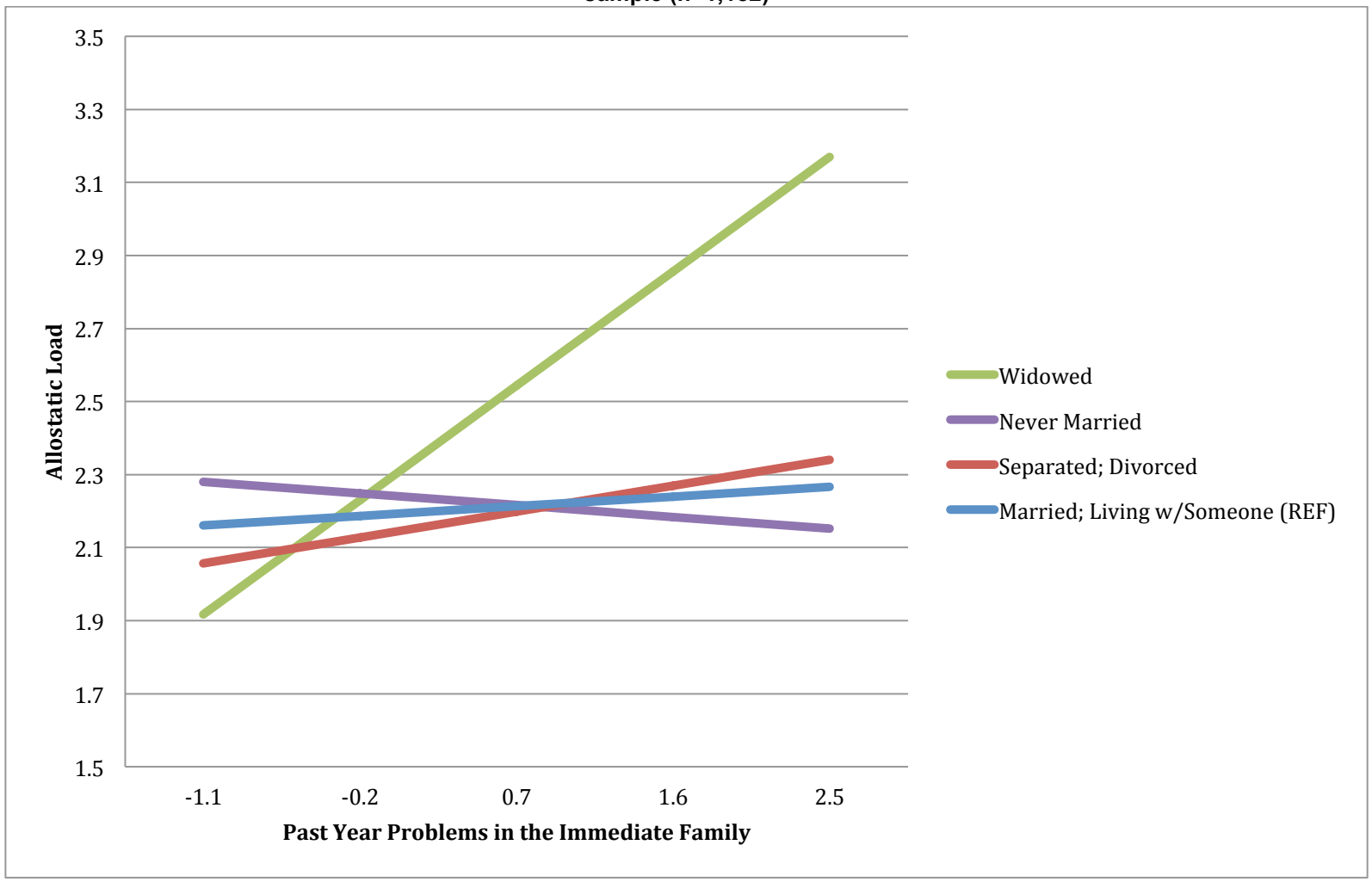
GRAPH 5.9: Examining the individual moderating role of marital status with respect to the relationship between the component psychosocial stress domain, relationship stress, with allostatic load among the participants in our analytic sample (n=1,182)



*Continuous variables (relationship stress, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero

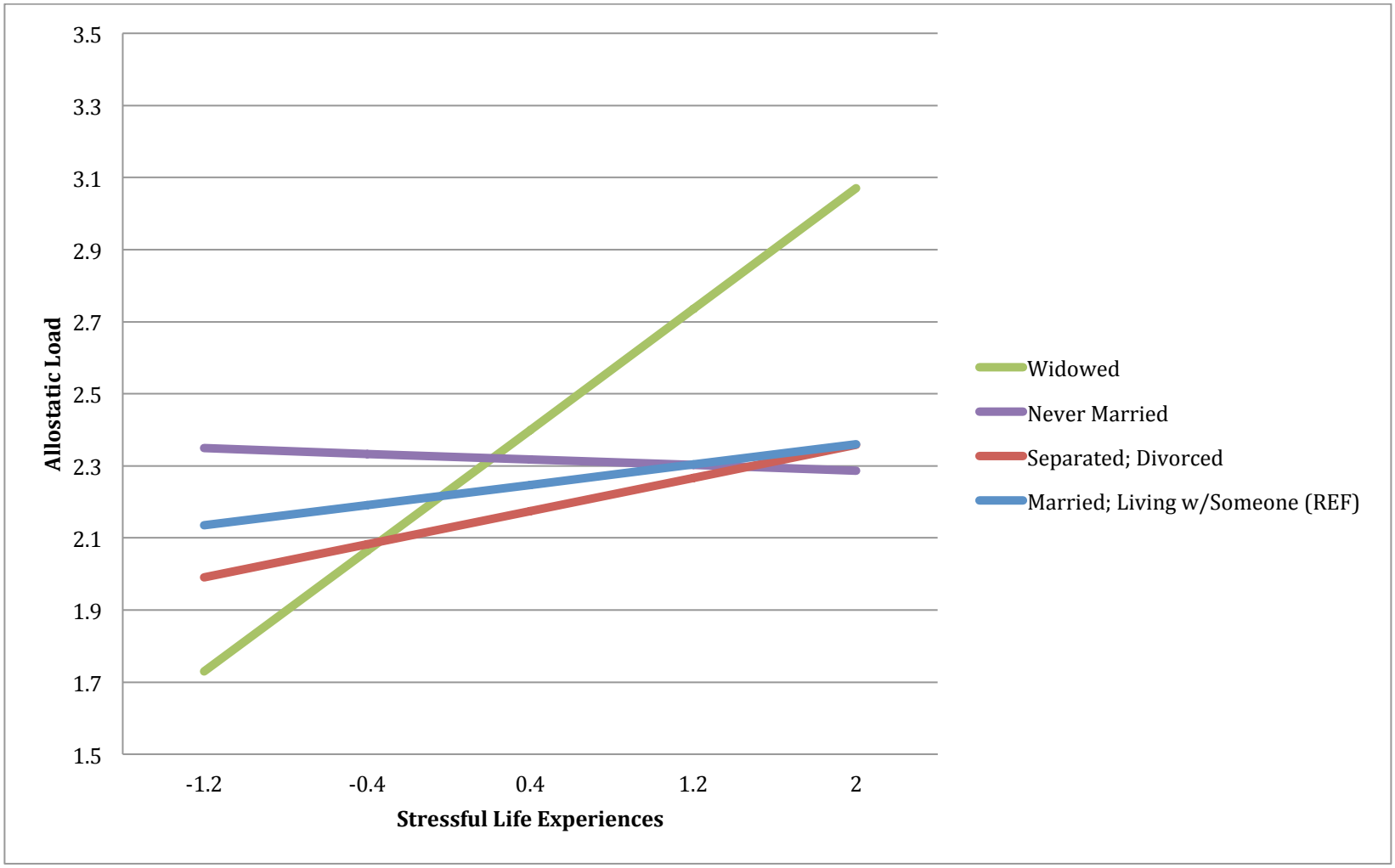
*Categorical variable reference groups were data collected at UCLA + female + non-Hispanic white + obtained a high school diploma, GED or less + never smoker + abstainer from alcohol use

GRAPH 5.10: Examining the individual moderating role of marital status with respect to the relationship between the component psychosocial stress domain, past year problems in the immediate family, with allostatic load among the participants in our analytic sample (n=1,182)



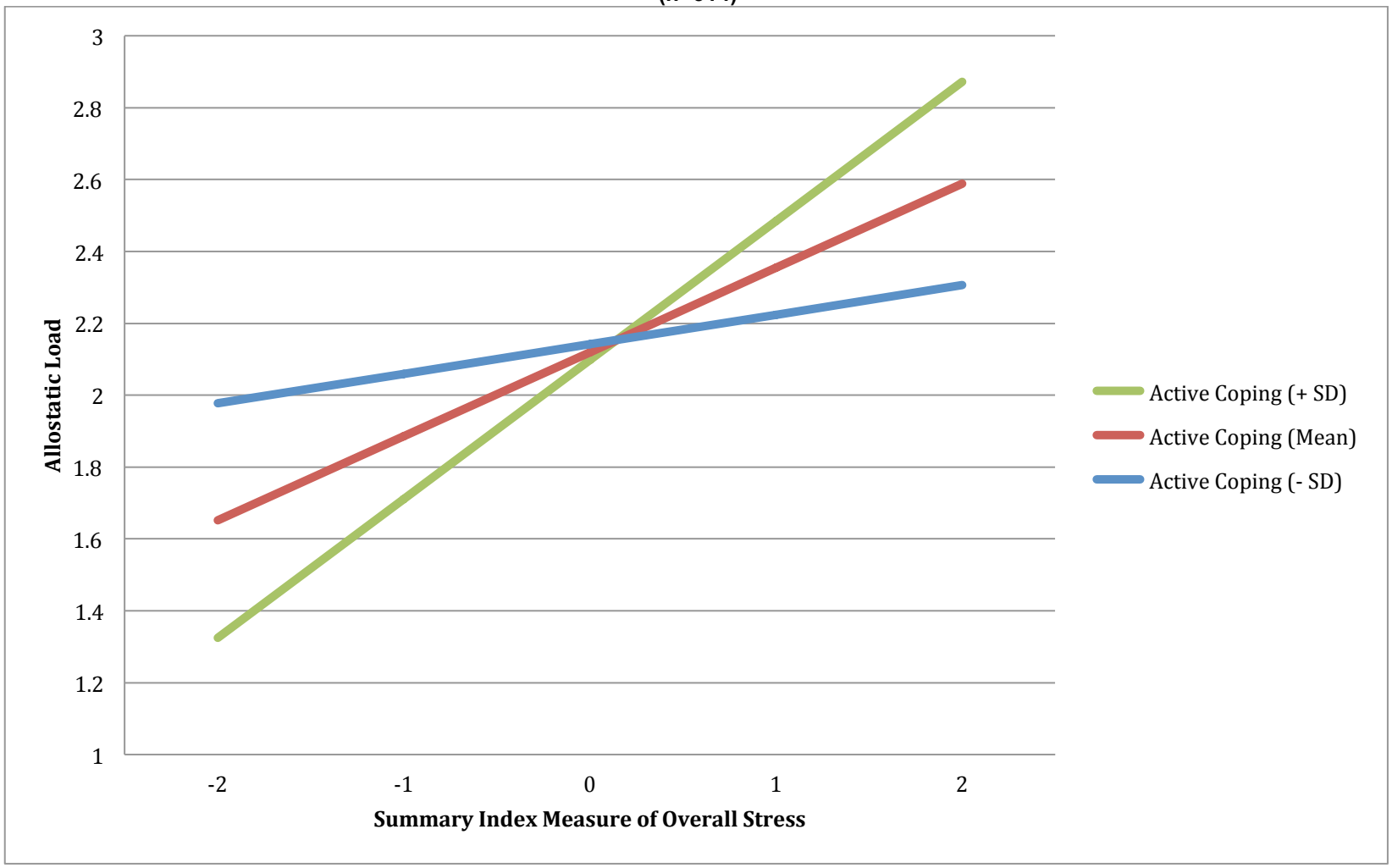
*Continuous variables (past year problems in the immediate family, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + never smoker + abstainer from alcohol use

GRAPH 5.11: Examining the individual moderating role of marital status with respect to the relationship between the component psychosocial stress domain, stressful life experiences, with allostatic load among the participants in our analytic sample (n=1,182)



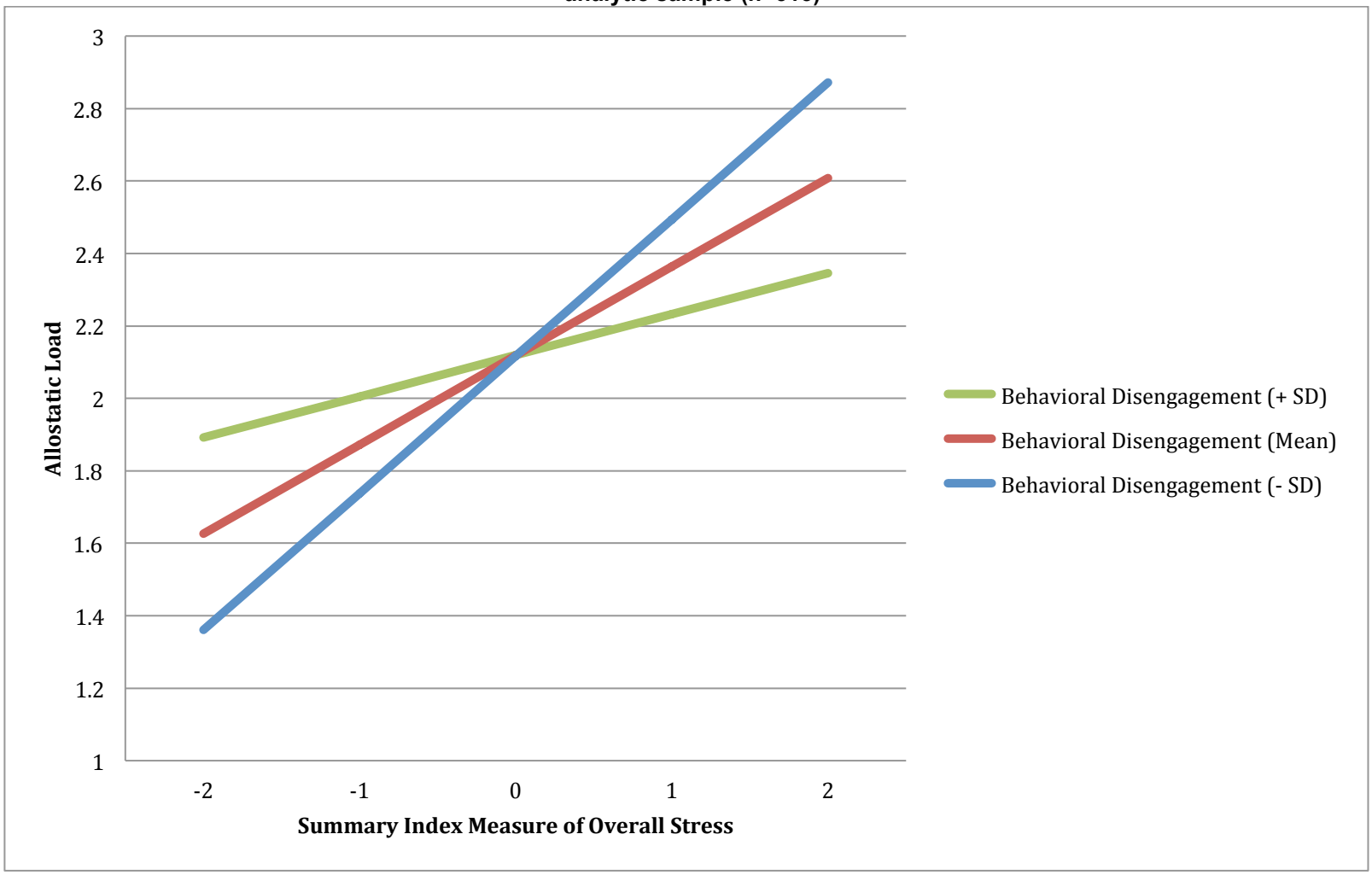
*Continuous variables (stressful life experiences, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + female + non-Hispanic white + obtained a high school diploma, GED or less + never smoker + abstainer from alcohol use

GRAPH 5.12: Examining the individual moderating role of active coping, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the individuals ages 46-54 within our analytic sample (n=314)



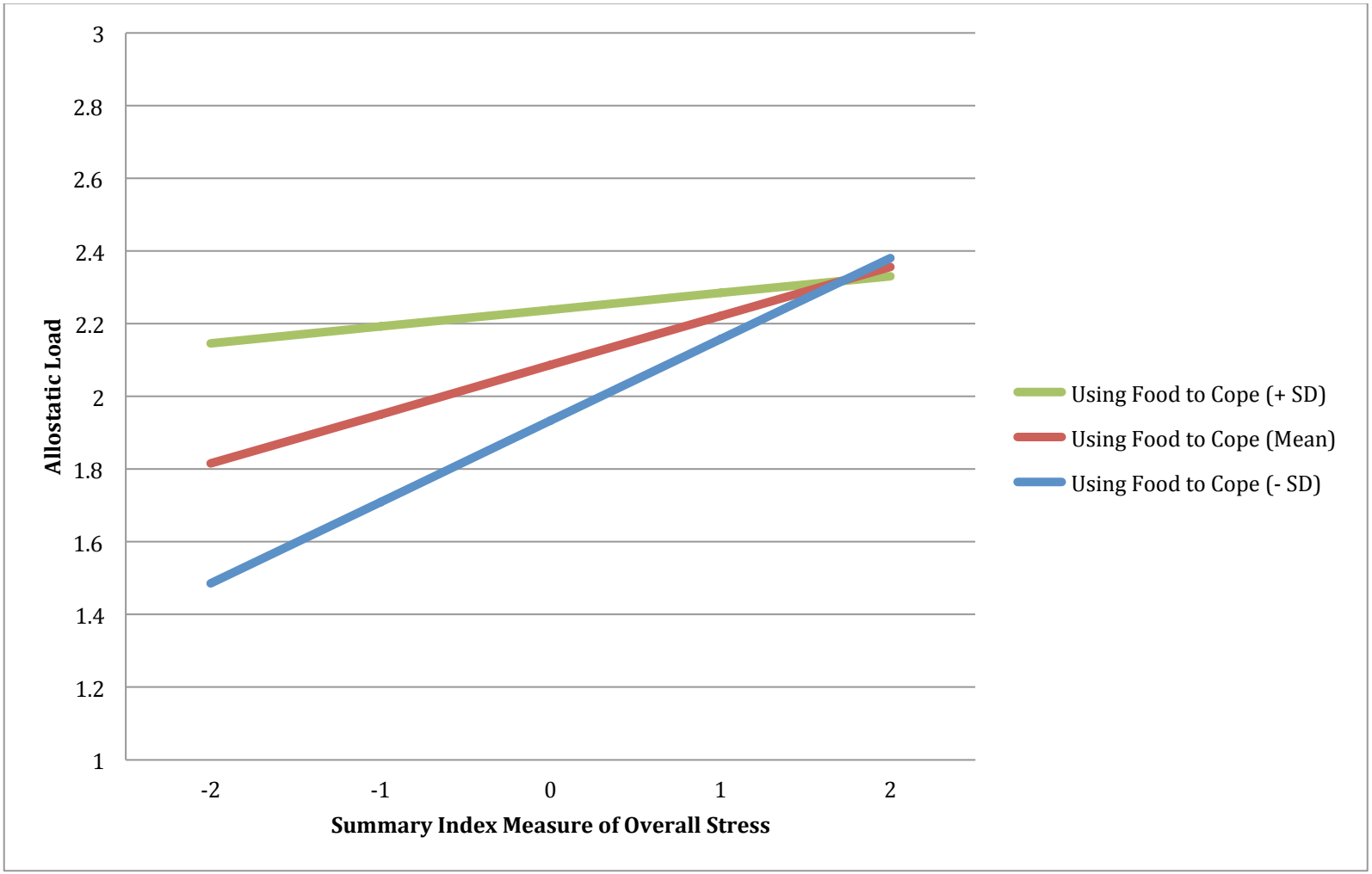
*Continuous variables (summary index measure of overall stress, active coping, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.13: Examining the individual moderating role of behavioral disengagement, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the individuals ages 46-54 within our analytic sample (n=313)



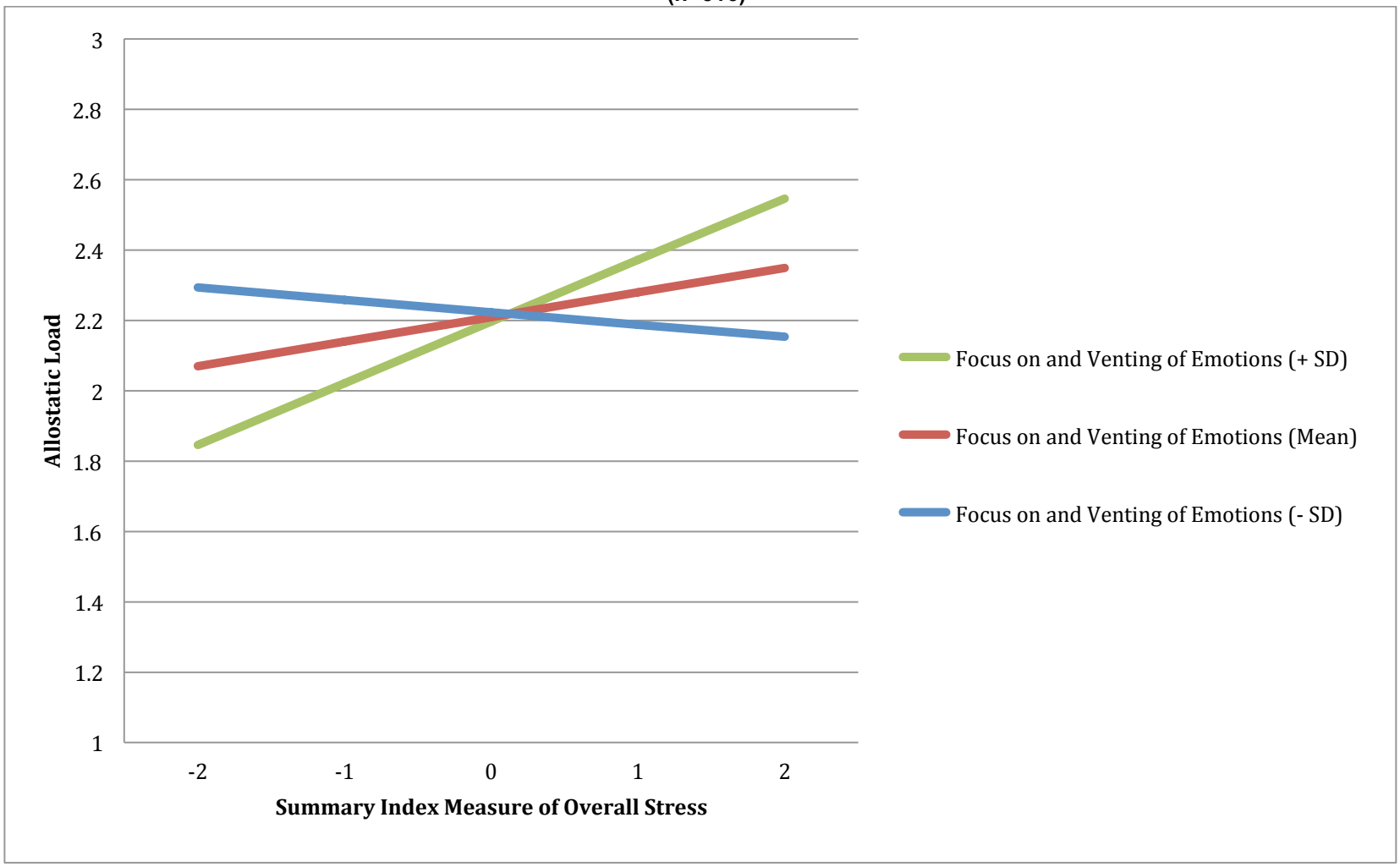
*Continuous variables (summary index measure of overall stress, behavioral disengagement, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.14: Examining the individual moderating role of using food to cope, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the females within our analytic sample (n=658)



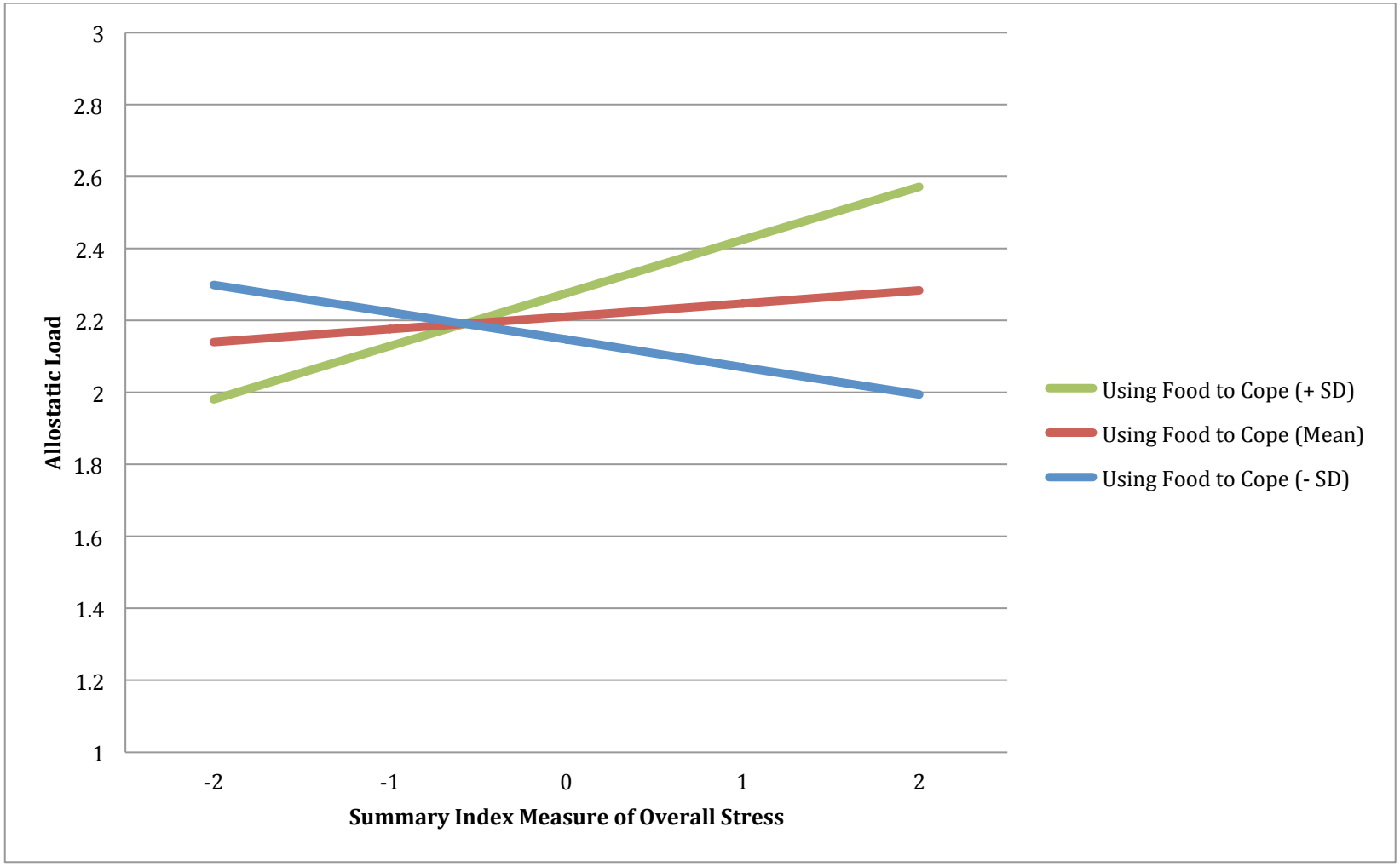
*Continuous variables (summary index measure of overall stress, using food to cope, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.15: Examining the individual moderating role of focus on and venting of emotions, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the males within our analytic sample (n=516)



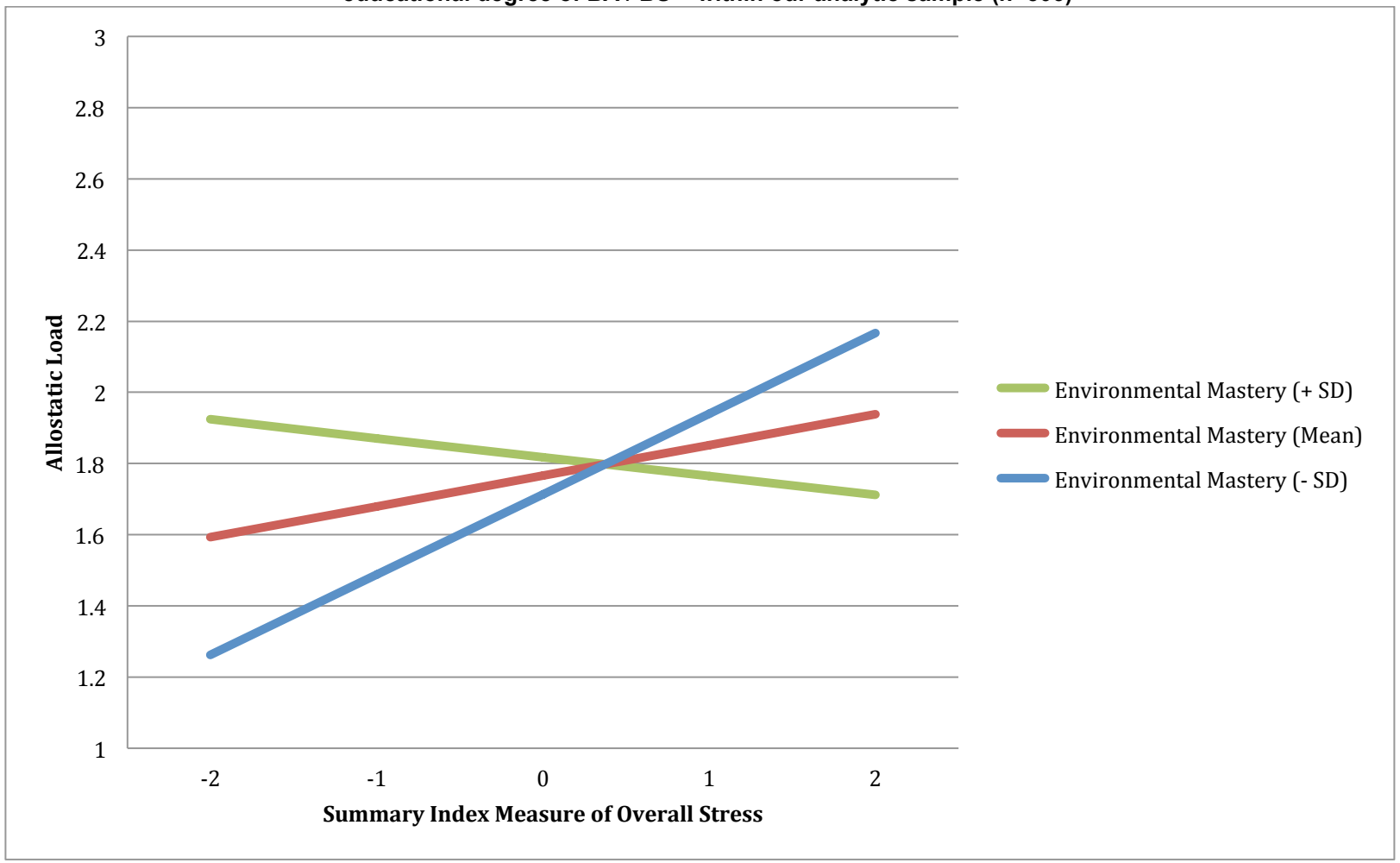
*Continuous variables (summary index measure of overall stress, focus on and venting of emotions, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.16: Examining the individual moderating role of using food to cope, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the males within our analytic sample (n=516)



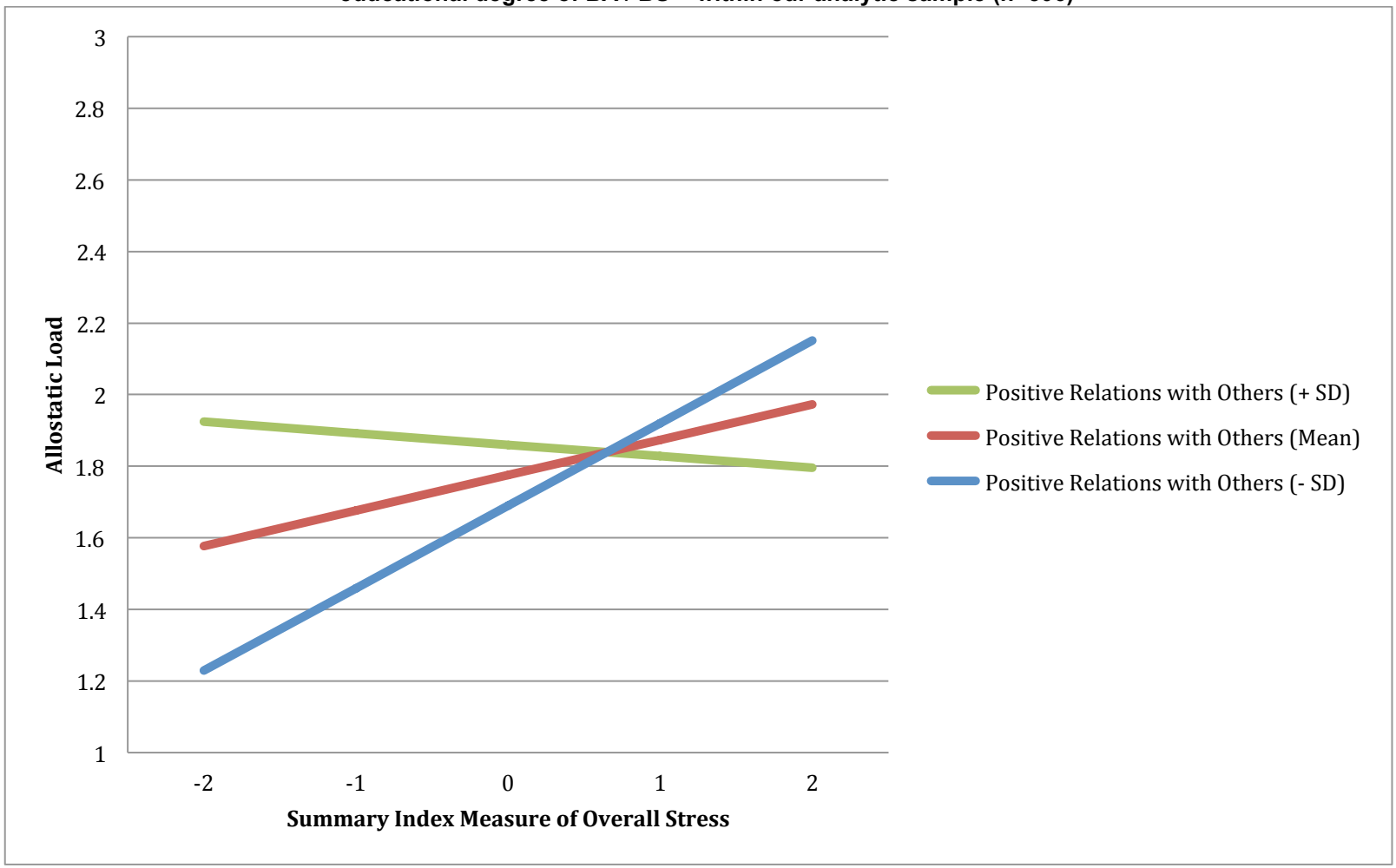
*Continuous variables (summary index measure of overall stress, using food to cope, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.17: Examining the individual moderating role of environmental mastery, from the psychological well-being scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the individuals attaining an educational degree of BA / BS + within our analytic sample (n=506)



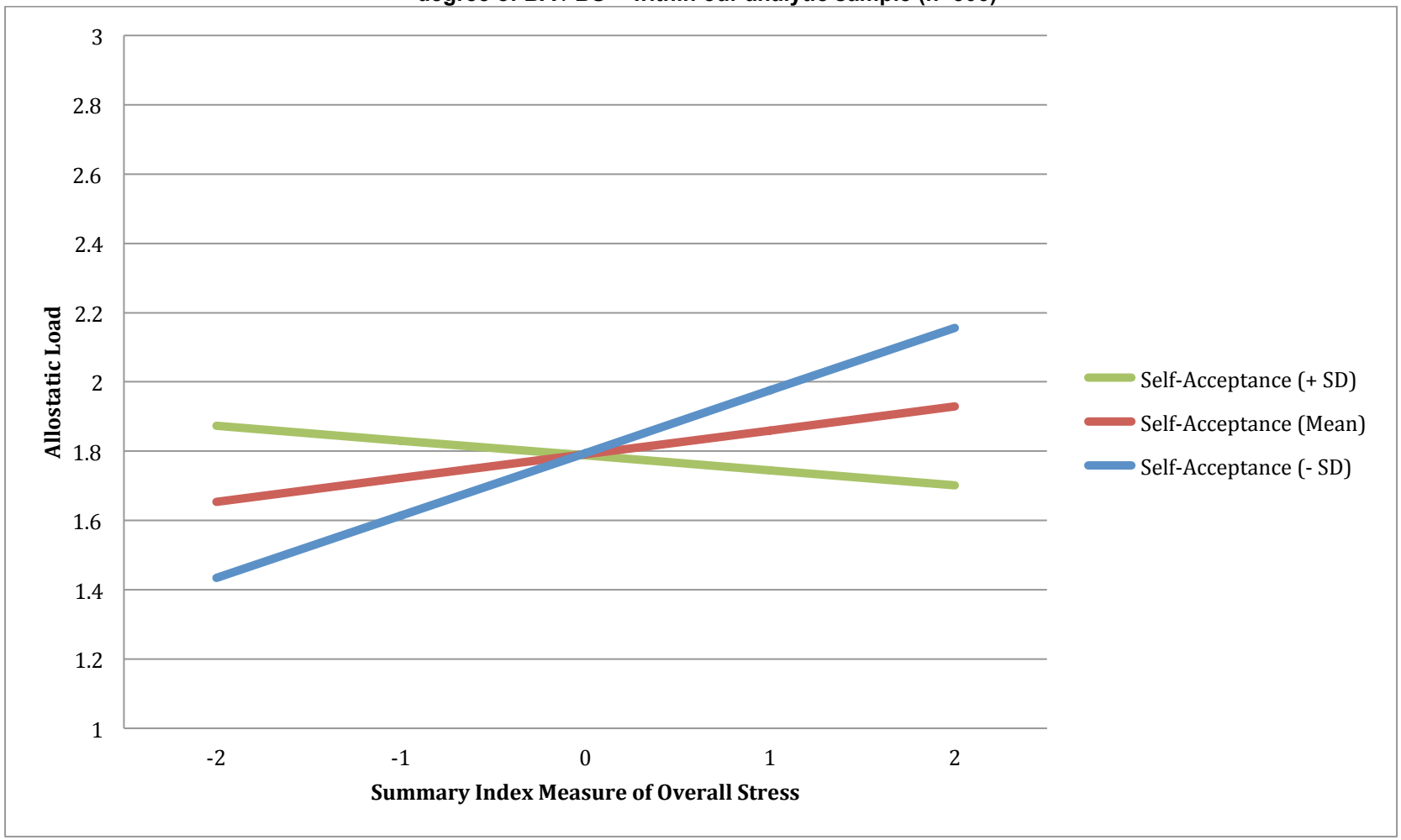
*Continuous variables (summary index measure of overall stress, environmental mastery, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.18: Examining the individual moderating role of positive relations with others, from the psychological-well being scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the individuals attaining an educational degree of BA / BS + within our analytic sample (n=506)



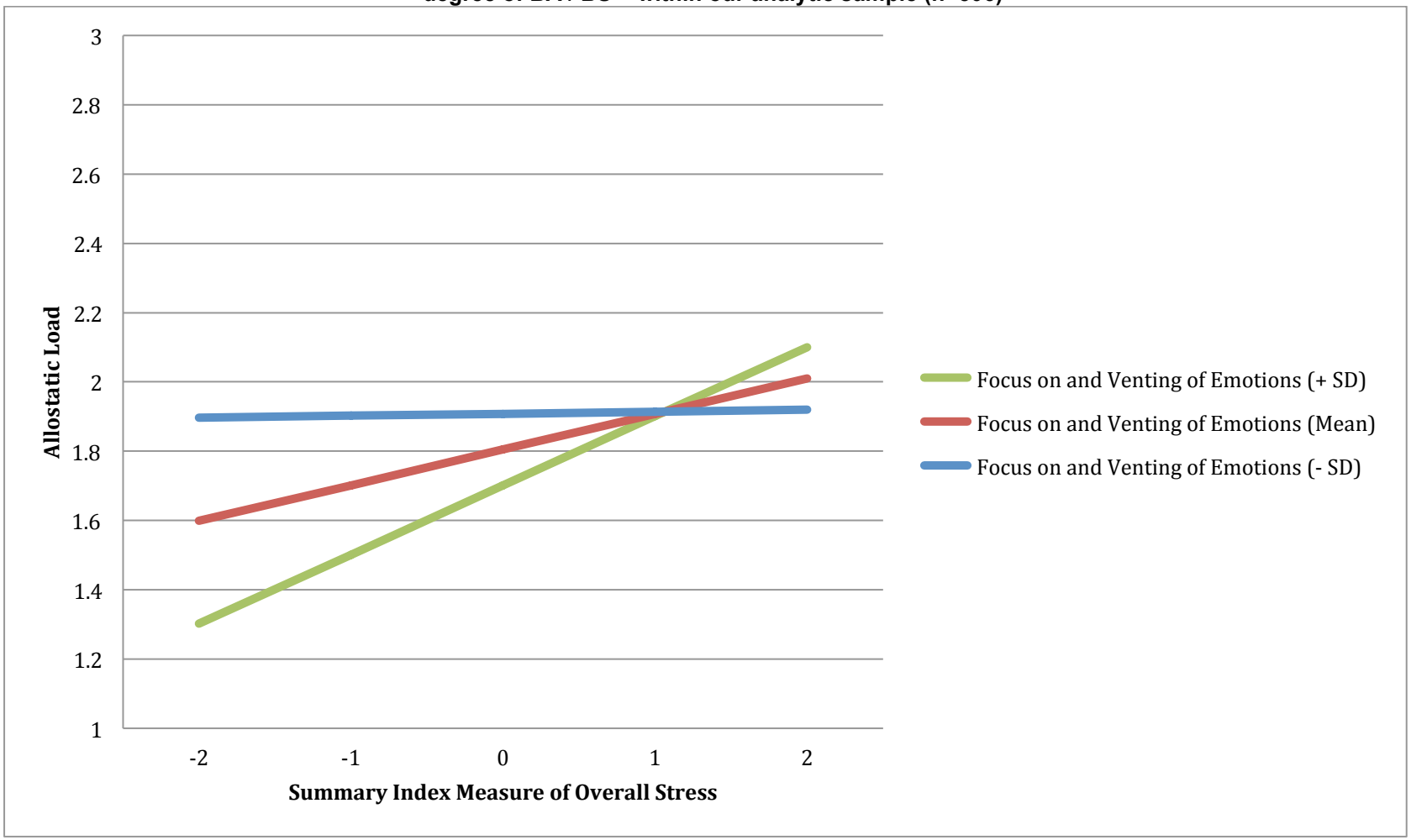
*Continuous variables (summary index measure of overall stress, positive relations with others, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.19: Examining the individual moderating role of self-acceptance, from the psychological well-being scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the individuals attaining an educational degree of BA / BS + within our analytic sample (n=506)



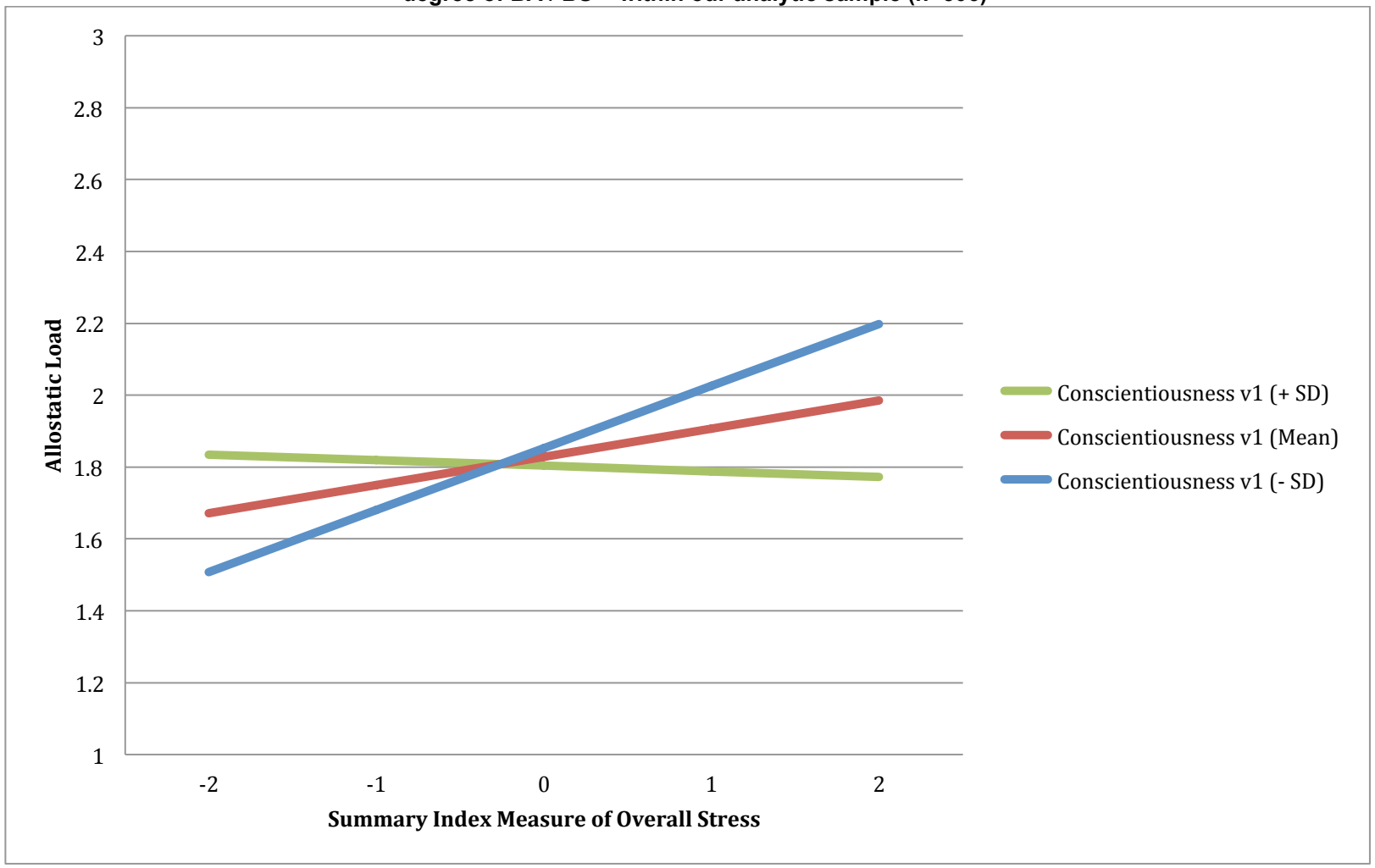
*Continuous variables (summary index measure of overall stress, self-acceptance, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.20: Examining the individual moderating role of focus on and venting of emotions, from the coping scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the individuals attaining an educational degree of BA / BS + within our analytic sample (n=506)



*Continuous variables (summary index measure of overall stress, focus on and venting of emotions, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero
*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

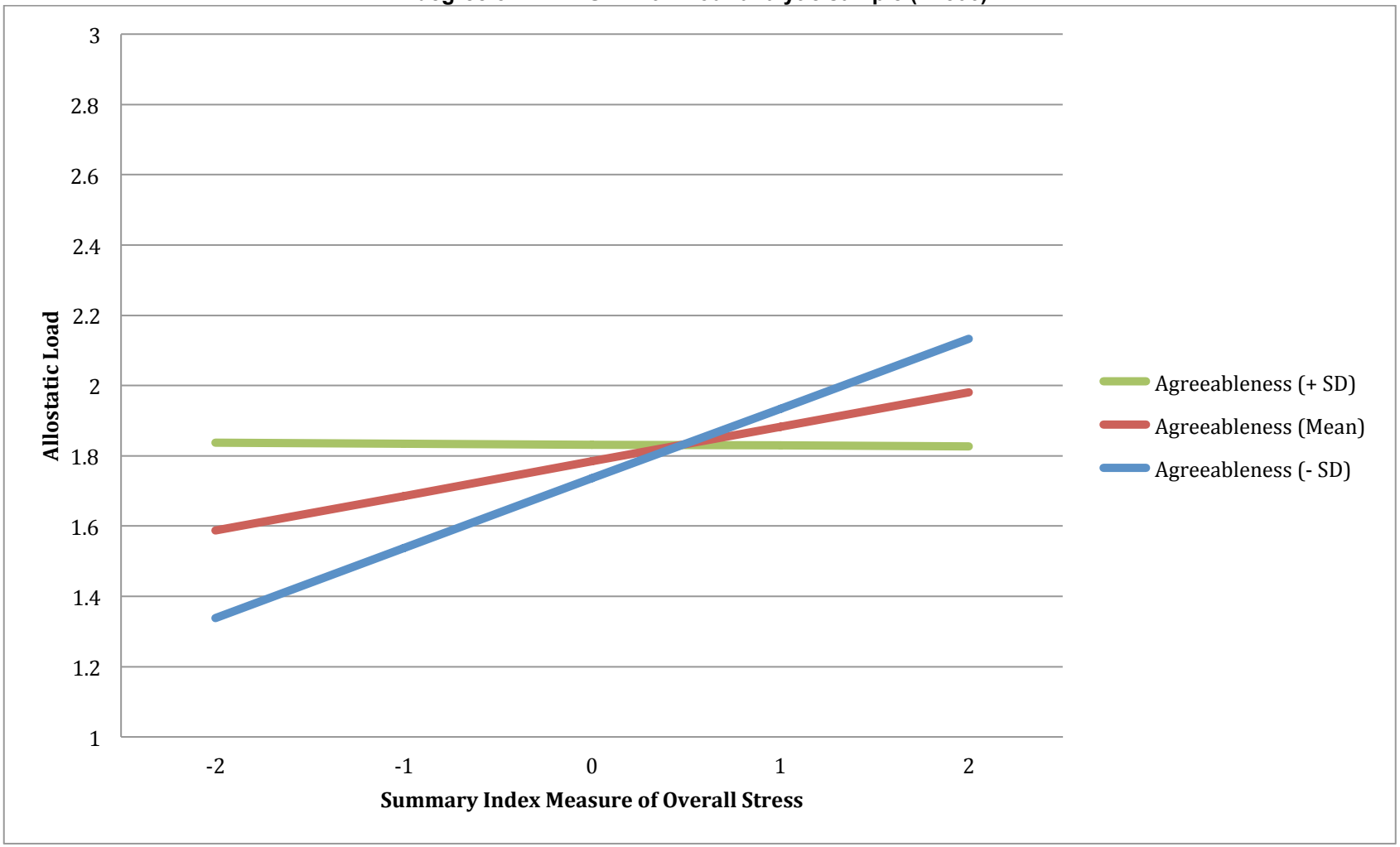
GRAPH 5.21: Examining the individual moderating role of conscientiousness (v1), from the personality trait scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the individuals attaining an educational degree of BA / BS + within our analytic sample (n=506)



*Continuous variables (summary index measure of overall stress, conscientiousness v1, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero

*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

GRAPH 5.22: Examining the individual moderating role of agreeableness, from the personality trait scales, with respect to the relationship between the summary index measure of overall stress with allostatic load, among the individuals attaining an educational degree of BA / BS + within our analytic sample (n=506)



*Continuous variables (summary index measure of overall stress, agreeableness, age, family-adjusted poverty-to-income ratio and average number of minutes of physical activity) were centered to have a mean of zero

*Categorical variable reference groups were data collected at UCLA + participant was currently employed + participant had one or more children + female + non-Hispanic white + obtained a high school diploma, GED or less + married or living with someone in a marriage-like relationship (M2P1 and M2P4) + never smoker + abstainer from alcohol use

APPENDIX A. Alcohol Use Questionnaire

33. The next questions are about alcoholic beverages. During the past month, have you had at least one drink of any alcoholic beverage such as beer, wine, wine coolers, or liquor?
[B4H33]

Yes……...1

No…….**(go to 38)**……...2

34. During the past month, how often did you drink any alcoholic beverages, on the average?
[B4H34]

Everyday……..**(go to 36)**……1

5 or 6 days/week……..**(go to 36)**……2

3 or 4 days/week……..**(go to 36)**……3

1 or 2 days/week……..**(go to 36)**……4

Or less than one day a week?……**(go to 35)**……5

Never Drink (VOLUNTEERED)….**(go to 38)**……6

35. [IF LESS THAN 1 DAY/WEEK] Would that be three or four days a month, one or two days a month, or less often than that?
[B4H35]

3 or 4 a month……..……1

1 or 3 days a month……..……2

Less often than one day a month……..……3

Never Drink (VOLUNTEERED)……**(go to 38)**…….4

36. We define one 'drink', as either a 12 ounce can or bottle of beer, a wine cooler, a 5 ounce glass of wine, a 1.5 ounce shot of liquor, or a mixed drink made with 1.5 ounces of hard liquor.

With this definition in mind, on the days when you drank, about how many drinks did you drink on average?

OF DRINKS _____ [B4H36]

37. Considering all types of alcoholic beverages, how many times during the past month did you have 5 or more drinks on the same occasion?

NUMBER OF TIMES _____ [B4H37]

38. Think about the period in your life, NOW OR IN THE PAST, when you drank most. During that time, how often did you TYPICALLY have at least one drink...
[B4H38]

Everyday……..**(go to 40)**……1

5 or 6 days/week……..**(go to 40)**……2

3 or 4 days/week……..**(go to 40)**……3

1 or 2 days/week……..**(go to 40)**……4

Or less than one day a week …… **(go to 39)**……5

Never Drink (VOLUNTEERED)….**(go to 43a)**……6

39. [IF LESS THAN 1 DAY/WEEK] Would that be three or four days a month, one or two days a month, or less often than that?
[B4H39]

3 or 4 a month……1

1 or 3 days a month……2

Less often than one day a month……3

Never Drink (VOLUNTEERED)……**(go to 43a)**……4

Don't know……**(go to 43a)**……5

40. During the period you drank most, about how many drinks would you usually have on the days that you drank?

DRINKS _____ [B4H40]

41. How old were you when you started to drink that much?

AGE IN YEARS _____ [B4H41]

42. For how many years did you drink that much?

NUMBER OF YEARS _____ [B4H42]

APPENDIX B. Description of Imputation

Imputation Method for the Composite Scale Items within the Component Psychosocial Stress Domains

Many of the stress measures that we have used in the stress summary scores were collected in the SAQ (this is particularly true for the MIDUS II respondents). Unfortunately, for some measures, there is a large amount of missing information that exists; therefore, we decided to impute missing information in order to avoid having to exclude these participants from the sample. To perform the imputation, we used IVEware software to carry out the sequential regression imputation method developed by Rhagunathan (2001). This method fits a sequence of regression models that are appropriate for the variables being imputed, and uses random draws from predictive distributions based on the models for imputation. In this method, an imputation model is specified separately for each variable, including other variables from the dataset as predictors.

IVEware allows users to specify bounds for possible imputation values; therefore, bounds were set according to the minimum and maximum values for each stress measure. In addition, variable "type" was specified (i.e., continuous, count, binary). For the purposes of imputing the stress measures, we modeled stress variables with a normal distribution for continuous variables and a Poisson distribution for count variables, and we used the "mixed continuous variable" option for measures that included a high proportion of respondents with scores of the lowest possible value for that measure, but that otherwise had an approximately normal distribution (this was common for our stress measures); in this situation, the lowest value (0) was treated as a discrete category, while values greater than 0 were considered continuous. For variables that we modeled as continuous, or continuous mixed variables, we examined the distribution for each variable and experimented with transformations that could improve the normality of the distribution. When a transformation could be utilized to improve the normality of the distribution of a variable, this variable was transformed for the imputation procedure, and then untransformed in the final dataset.

The IVEware method uses all available information in the dataset to impute values; therefore, we developed a dataset that contained the variables for which imputations were necessary, as well as additional variables that had both high response rates and that we believed would be predictive of the variables that we wished to impute (e.g., demographic variables, health outcome and behavior variables). Given that the relationships between the variables for each sample may be different, we performed the sequential regression imputation method on the MIDUS II and Milwaukee samples separately, under the assumption that this method would improve the precision of estimates for each sample.

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