

ETHNIC IDENTITY, WELL-BEING AND HEALTH AMONG COLLEGE STUDENTS

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## ETHNIC IDENTITY, WELL-BEING AND HEALTH AMONG COLLEGE STUDENTS

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## ABSTRACT

Ethnic identity has been shown to be a protective factor against negative mental health outcomes for people of color. As health disparities persist, and the demographics of the United States continue to change and become more diverse, ethnic identity might also prove to be an effective instrument in reducing poor health outcomes among marginalized populations. The purpose of this project was to examine the relationship between ethnic identity, three health promotion behaviors, and perceived stress.

Four hundred and fifty-three college students from a Mid-Western university participated in this study. Results indicate that people who have a high ethnic identity score eat more vegetables,  $F(1, 242) = 10.40, p < .001, \eta^2 = .041$ , and perceived stress,  $F(1, 242) = 11.22, p < .001, \eta^2 = .044$ , than people with a low ethnic identity score. Comparisons between ethnic groups, however, did not reveal any differences other than total ethnic identity scores. Multiple regression was used to compare the relationships between ethnic identity and health behaviors (i.e. fruit intake, vegetable intake, and physical activity) and perceived stress. Health behaviors and perceived stress did not provide reliable B weights for the ethnic groups and, therefore, comparisons between the ethnic groups were not conducted.

Ethnic identity may be one avenue for reducing health disparities. Although ethnic identity may not be sufficient to improve an individual's overall health, it seems to help by promoting vegetable consumption and limiting the situations that individuals deem stressful. By increasing vegetable consumption and reducing stress, ethnic identity addresses two factors that contribute to health disparities. Implications and future research involving ethnic identity are discussed.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
II. LITERATURE REVIEW	4
Ethnic Identity	4
Historical Perspectives on Ethnic Identity	5
Development of the Multigroup Ethnic Identity Measure	6
Racial Identity Theories	7
Ethnic Identity as a Protective Factor	12
Ethnic identity and self-esteem	13
Ethnic identity and discrimination	14
Ethnic identity and stress	16
Ethnic identity and health behaviors	18
Research Questions	19
III. METHODOLOGY	21
Participants and Setting	21
Procedure	21
Measures	22
Multigroup Ethnic Identity Measure (MEIM-R)	22
Perceived Stress Scale	23
Behavioral Health	23
Plan for Analysis	24
IV. RESULTS	26
Research Question 1	26
Research Question 2	27
Research Question 3	28
V. DISCUSSION	29
Implications	33
Nutrition interventions	34
Stress management interventions	35
Health disparities	36
Limitations	37
Future Research	37
Conclusion	39

TABLE OF CONTENTS (continued)

Chapter	Page
REFERENCES	40
APPENDIX	48

## LIST OF TABLES

Table	Page
1. Participant Demographics	49
2. Questions Included in Analysis	50
3. Cronbach's Alpha Coefficients of the MEIM-R and PSS	51
4. Low and High Ethnic Identity Group Demographics	51
5. Means and Standard Deviations of Participants with the Top Third and Bottom Third of Ethnic Identity Scores	52
6. Means and Standard Deviations by Ethnic Group	52
7. Results for the Overall Regression Models	53
8. Unstandardized B Weights for Each Ethnic Group	53

## **CHAPTER I**

### **INTRODUCTION**

The purpose of this dissertation is to examine ethnic identity and its relationship to health behaviors and its potential role as a protective factor across different ethnic groups. Specifically, this dissertation aims to measure if ethnic identity is associated with stress and health behaviors. Another purpose of this study is to identify any differences in the strength or direction of the relationships between ethnic identity and stress and ethnic identity and health behaviors between different ethnic groups. Stress is one factor that contributes to health disparities (Djuric et al., 2008). While everyone experiences stress, people of color typically have more stressors than their Caucasian counterparts (Williams & Neighbors, 2001; Williams & Mohammed, 2009). These stressors include racism, perceived discrimination (Djuric et al., 2008), and a history of oppression. It has been demonstrated that, over time, this extra stress can have a negative effect on the health of individuals (Djuric et al., 2008).

Health disparities continue to plague this nation. Populations of color still continue to experience higher rates of disease than their Caucasian counterparts (Williams & Braboy Jackson, 2005). Diabetes (CDC, 2014a), hypertension (CDC, 2012a), heart disease (Go et al., 2014), and some forms of cancer (CDC, 2014b) are more prevalent among populations of color than they are among the Caucasian population. While only 7.6% of Caucasians have diabetes, the prevalence of the disease is higher among populations of color: 9% of Asian Americans, 12.8% of Hispanics, 13.2% of African Americans, and 15.9% of American Indians have diabetes (CDC, 2014a). Similarly, hypertension is more prevalent among African Americans (42.1%) than it is among Caucasians (28.0%) (CDC, 2012a) as is cardiovascular disease with 44% and

49% of African American men and women and 37% and 32% of Caucasian men and women having cardiovascular disease, respectively (Go et al., 2014). Cancer rates are higher for African American men than they are for Caucasian men, and, while Caucasian women are more likely to get cancer, African American women who have cancer are more likely to die from the disease (CDC, 2014b). The prevalence of obesity, furthermore, is higher among Hispanics and African Americans than it is for Caucasians of comparable age and socioeconomic status (Ogden, Carroll, Kit, & Flegal, 2014) further increasing the risk of developing heart disease, diabetes, hypertension, cancer, and other diseases (CDC, 2012b). As a result of these disparities, Hispanics, African Americans, and Native Americans are more likely than Caucasians to rate their health as only fair or poor (CDC, 2011) and the life expectancy for African Americans is 3.8 years shorter than that of Caucasian Americans (U.S. Dept. H.H.S., 2013; Levine, Foster & Fullilove et al., 2001; Murray, Kulkarni, & Michaud et al., 2006). Thus, researchers are interested in determining what is contributing to these disparities in health.

There are a host of factors that contribute to these health inequities including socioeconomic status, residential area, access to medical care, and health practices (Williams & Braboy Jackson, 2005). Generally, socioeconomic status is positively related to a person's health (Smith, 1998; Warnecke et al., 2008), as higher socioeconomic status confers several advantages such as the ability to purchase healthier food, afford medical care, and the ability to live in neighborhoods with adequate resources. Populations of color, however, are disproportionately represented in lower socioeconomic groups (Warnecke et al., 2008), leaving them without the advantages afforded to those of a higher socioeconomic status. While socioeconomic status does affect health, it is not, however, the sole cause of health disparities, as evidenced by the presence of health disparities within each socioeconomic category (Marmot,

2003). This dissertation will focus on the role of ethnic identity in promoting factors that may reduce health disparities (i.e. fruit and vegetable consumption and exercise) and reducing factors that may exacerbate health disparities (i.e. stress).

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **ETHNIC IDENTITY**

Ethnic identity is part of a person's self-concept derived from one's knowledge of belonging to an ethnic group along with the value and significance placed in one's ethnic group membership (Tajfel, 1981). Ethnic Identity is multi-dimensional, dynamic, and something that is built over time. Derived from experiences, actions, and choices an individual makes during their lifetime, the development of a secure ethnic identity adds to a person's self-concept and provides a stable sense of one's self as a member of an ethnic group (Phinney & Ong, 2007). While ethnic identity is similar in many ways to racial identity, the two are distinct constructs (Phinney & Ong, 2007; Helms, 2007). Race is a construct used to group people into social categories based on biological characteristics. Research about race has traditionally focused on responses to racism and racial identity measures typically assess the experiences one has had with internalizing racism (Helms, 2007). Racial Identity measures, furthermore, are specific to one racial group, making comparisons between racial groups impossible. Ethnicity, on the other hand, refers to the cultural practices of an ethnic group (Helms, 2007). Unlike race, ethnicity is not assigned to people by society. Ethnicity, instead, is learned from other members of an ethnic group through the passage of customs, traditions, language, religion, and values etc.

Ethnic identity, then, refers to one's commitment to their cultural group and the extent of their engagement in their group. Because ethnic identity focuses on concepts shared by people in all ethnic groups—an individual's degree of inclusion and psychological commitment to a particular group—a single measure of ethnic identity can be used across all racial/ethnic groups, allowing for between-group comparisons. (Helms, 2007; Phinney & Ong, 2007).

## HISTORICAL PERSPECTIVES ON ETHNIC IDENTITY

Ethnic identity was brought to light by the Clark (1939, 1947) doll studies. These studies aimed to show how stereotypes affected children's self-perceptions of their race. The experiment consisted of presenting African American children with two dolls, a White doll with blonde hair and a brown doll with black hair, and asking the children a series of questions about the dolls. The experiment included questions such as "Show me the doll you would best like to play with" and "Show me the doll that is nice". These questions were followed by more questions, including "Show me the doll that looks bad", "Give me the doll that looks like a colored child", and "Give me the doll that looks like a White child". The children involved in this study often chose to play with the White doll and indicated the brown doll as being the 'bad' and 'ugly' doll (Clark & Clark, 1939, 1947). These results seemed to indicate that children were internalizing the apparent racism of the 1940's. While many latter researchers criticized the methods of this research, these results were used in Brown v. Board of Education (1954) case to prove that separate is inherently unequal.

Following the civil rights movement, and the explosion of social psychology, ethnic identity was in the spotlight again. Popular social identity theorists, such as Tajfel (1981) were embracing ethnic identity as a protective factor for psychological well-being. Researchers at this time were asserting that belonging to groups was good for people and ethnic groups were no exception. According to social identity theory, belonging to a group promotes well-being (Lewin, 1948), and adds to a positive self-concept (Tajfel and Turner, 1979). Instead of viewing ethnic membership as something to be ashamed of, most researchers endorsed the idea that ethnic membership was a protective factor. Most of this research, however, was theoretical and did not provide or examine any empirical evidence.

## **DEVELOPMENT OF THE MULTIGROUP ETHNIC IDENTITY MEASURE**

Recognizing the need for empirical exploration, Phinney (1992) developed a model of ethnic identity development that can be applied to people from all ethnic groups. In her model of ethnic identity development, Phinney focused on the universal components of ethnic identity development common to all ethnic groups: self-identification as an ethnic group member, sense of belonging to one's ethnic group, and attitudes towards one's group (Phinney, 1990). Phinney proposed that ethnic identity is developed through a process similar to Erikson's (1968) developmental model of ego identity; through a process of exploration of, and commitment to, one's own ethnic group (Phinney, 1992; Phinney & Ong, 2007). Exploration of one's ethnicity refers to seeking out more information about their ethnic group and commitment includes internalizing positive attitudes about and attachment to one's own ethnic group (Phinney & Ong, 2007).

Following Marcia's (1980) stages of ego identity development (Erikson, 1968), Phinney (1989) proposed that people progress through three stages of ethnic identity development. According to Phinney's (1989) model, the first stage of ethnic identity development is marked by a disinterest or naivety about one's own ethnicity. Someone in this first, or diffused, state of ethnic identity has not yet explored their ethnicity. While some people in this group may prefer the dominant culture, others may have blindly adopted the positive ethnic attitudes of others. Either way, people in this group have not thought through ethnic issues for themselves and do not have a strong understanding of, or commitment to, their own ethnicity (Phinney, 1990).

The second stage of ethnic identity development, moratorium, is marked by the exploration of one's ethnicity. Often times, this exploration is triggered by something that makes a person aware of their ethnicity. Exploration often involves activities such as reading about

one's ethnicity, having conversations about ethnicity, and participating in ethnic events (Phinney, 1990). During this stage, people gain a better understanding of what their ethnicity means to them despite the views of the dominant culture.

The third and final stage of ethnic identity development, achievement, involves commitment to one's own ethnicity. During this stage, the individual develops a deeper understanding of their ethnicity and begins to internalize what they have learned. Individuals often face two fundamental problems while internalizing their ethnicity: their culture has different norms and values than the dominant group and their culture may have a lower status in society than the dominant group (Phinney, Lochner, & Murphy, 1990). Once one has evaluated and resolved these questions, and internalized their ethnic beliefs and values, they have "achieved" their ethnic identity. An individual who has "achieved" their ethnic identity will have a clear, confident, and positive self-image as a member of their ethnic group as well as a sense of pride and belonging to their ethnic group. The "achievement" of ethnic identity, however, does not mark the end of exploration and commitment as one may choose to continue these activities after "achieving" their ethnic identity (Phinney, 1990).

## RACIAL IDENTITY THEORIES

Around the same time Phinney (1989; 1990; 1992; Phinney & Ong, 2007) was developing the Multigroup Ethnic Identity Measure (MEIM), other researchers were developing measures of racial Identity (Sellers et. Al, 1998; Cross, 1971; Cross, 1991; Baldwin, 1985; Helms, 1990). One of the first models of racial identity development was Cross' (1971) Nigrescence model (Chavez & Guido-DiBrito, 1999) which describes the process of "becoming Black" through a progression of five stages: 1) Preencounter—the person has a non-Afrocentric identity and is racially unaware 2) Encounter—the individual is faced with a challenge or

challenges that calls their race into question. This challenge causes the individual to reinterpret the world through a racial lens. 3) Immersion-Emersion—During this stage the individual immerse their self in a newly found African American identity and may denounce Caucasian culture. 4) Internalization—The individual is more confident in their “new identity” and is able to balance their racial identity with other identities they may have. 5) Internalization-Commitment—The individual will now have an Afrocentric identity and will continue to be involved solving problems shared by the group (Cross, 1991).

Helms (1990) developed a similar model of White racial identity development. Instead of describing the state of Caucasian racial development, however, the purpose of Helms’ model of White racial identity development was to bring awareness to the role that Caucasians play in constructing and upholding a racist society and the necessity for their participation in its deconstruction (Helms, 1992). This model of Caucasian racial identity development, then, is a proposal of how a healthy or “positive” Caucasian racial identity might develop. Caucasian racial identity development ultimately involves an individual moving from an unawareness or denial of racism to a racial acknowledgement and self-actualization. According to Helms (1990), Caucasian racial identity development consists of two phases, each with three stages. The first phase of Caucasian racial identity development involves the acknowledgement and abandonment of racism. This begins when a Caucasian individual comes into contact with a person, or people, of color and becomes aware that people of color and Caucasians are not treated equally. This realization will prompt the Caucasian individual to confront internal dilemmas such as “the desire to be a religious and moral person versus the recognition that to be accepted by Whites one must treat Blacks immorally” (pg. 58). After working through such dilemmas, the Caucasian individual will acknowledge their Caucasian identity and may uphold

their belief of Caucasian superiority. While many people may stay at this stage, others may question their racial beliefs and move on to the second phase of Caucasian identity development; defining a nonracist Caucasian identity. In defining a nonracist Caucasian identity, the individual questions their previous beliefs of African American inferiority and begins to understand the Caucasian's responsibility for racism. This individual, at this point, no longer has a negative Caucasian identity but they have not yet begun to form a positive Caucasian Identity. While a person in this stage may acknowledge their responsibility for racism, their focus may be on trying to "help" African Americans or other people of color change to fit the Caucasian model of success and will still interpret racial differences through the lens of Caucasian life. Upon noticing that their actions make people uncomfortable, the Caucasian individual may now start to question their race as well as their stance on racial issues and begin looking for a better definition of Whiteness. In order to form a positive Caucasian identity, however, the individual will eventually have to recognize that African Americans are not inferior to Caucasians and will have to find out more about what it means to be Caucasian. Discovering one's Whiteness may involve reading about other Caucasians who have had similar identity journeys and the realization that the reduction of racism will be brought about by a change in Caucasians instead of changes in people of color. Once this attitude is internalized, an individual with a newfound positive Caucasian identity may take a bicultural worldview, seek relationships with others regardless of their race, and act to eliminate oppression and racism (Helms, 1990).

The Multidimensional Model of Racial Identity (MMRI; Sellers et al., 1998) is another model of African American racial identity. Unlike the Nigrescence and White racial identity models, the MMRI does not describe racial identity development. It focuses, rather, on describing the status of racial identity at a given point in an individual's life. Three assumptions

are used as the framework for the MMRI: 1) Identity is relatively stable but it is also dynamic across different situations. 2) Individuals have multiple identities with differing levels of importance. 3) There is no predetermined definition of what it means to be African American—one's own idea of what it means to be African American is most important and any identity is, therefore, neither good or bad. Using these three assumptions the MMRI describes four dimensions of an individual's racial identity; racial salience, racial centrality, racial regard, and racial ideology. Racial salience refers to the importance an individual places in their race in a particular situation; it may vary across different situations. Racial centrality is more stable than racial salience and refers to the manner in which an individual normally defines their self and their race. Racial regard consists of two sub-dimensions; public and private regard. Public regard is an individual's perceptions of how others view African Americans. Private regard refers to an individual's positive or negative feelings about being African American. Racial ideology is an individual's attitudes, beliefs, and opinions about how African Americans should live and act. Sellers et al. (1998) outlined four prevalent philosophies of racial ideology: nationalist, oppressed minority, assimilationist, and humanist. The *nationalist ideology* emphasizes the uniqueness of being African American, highlights the unique experiences of African Americans, and stresses the importance of autonomy among African Americans. An individual with a nationalist ideology may participate in African American organizations and may possess a deep appreciation for the accomplishments of African Americans. The *oppressed minority ideology* stresses the oppression of African Americans and other oppressed groups. Individuals who express this ideology may be interested in other oppressed cultures and may aim to work with other groups for the purpose of social change. An emphasis on the similarities of African Americans and the rest of American society is characteristic of the *assimilationist*

*ideology*. While an individual with an assimilationist ideology may want to be included in mainstream American culture and interact with Caucasians, they still place importance in being African American and acknowledge the existence of racism. The *humanist ideology* emphasizes the similarities of all humans and often views people as belonging to the human race rather than their biological race. Individuals who endorse the humanist ideology are often times concerned with the “larger” issues facing humanity such as world peace or hunger. These ideologies are not mutually exclusive; an individual may fluctuate between different ideologies depending on the situation. An individual could, for example, believe that they should primarily support businesses owned by African Americans (nationalist) and think that they should work within the mainstream culture to bring about social change (assimilationist). None of these ideologies are seen as optimal or better than the others, they simply provide a framework for how racial identity may manifest itself at any given moment among African Americans. (Sellers et al., 1998).

The Nigrescence model, the White racial identity development model, and the MMRI are all examples of racial identity models. These models were not selected for this study for many reasons. First, each of these models outline different aspects of racial identity. While the Nigrescence and White racial identity models both describe identity development, the developmental process for each group is different. Although both models describe one’s transition from being unaware of racial issues to developing a racial identity, each model is distinctly different based on their respective racial group. Comparing the racial identity development of different groups using these models, therefore, is impossible. Second, each model was created for a different purpose. The Nigrescence models was created to explain the Racial development of African Americans (Cross, 1971; Cross, 1991), the White racial Identity model was created to make people aware of the Caucasian’s role in maintaining a racist society

(Helms, 1992), and the MMRI was created to provide a snapshot of what racial identity looks like at a given point in an individual's life (Sellers et al., 1998). While each of these models provide insight to racial identity, each of them seem to tap into different aspects of racial identity. Third, each of these racial theories are based on the experiences of people from their respective racial groups. A person who is not African American, for example, would not fit the Nigrescence model or the MMRI and someone who is not Caucasian would likely not go through the racial identity development stages defined by Helms (1990). Because each of these models of racial identity are so in-group specific, they cannot be compared nor can any of the findings using these measures be generalized to other groups.

Ethnic Identity, on the other hand, can be generalized and measured between different ethnic groups. Because ethnic identity, as measured by the MEIM, refers more to a cultural construct than a political category (Helms, 2007), its measurement can be generalized into a few universal categories (Phinney 1992). For this reason the MEIM was selected for use in the present study. The MEIM only measures the universal factors involved in ethnic identity development: ethnic group exploration, sense of belonging to an ethnic group, and attitudes towards one's ethnic group. By only measuring universal aspects of ethnic identity development common to all groups, the MEIM is able to measure and compare the ethnic development of people from different ethnic groups (Phinney, 1992).

### **Ethnic Identity as a Protective Factor**

There are many ways in which ethnic identity may serve as a protective factor. First, just identifying oneself as part of a larger group promotes development of a positive self-concept, which promotes an individual's well-being (Lewin, 1948; Tajfel and Turner, 1979), and predicts happiness (Kiang, Yip, Gonzales-Backen, Witkow, Fuligini, 2006). Second, having a strong

sense of ethnic identity promotes positive attitudes about, and feeling comfortable with, one's own group (Tajfel & Turner, 1986). Often times, negative stereotypes are placed on groups that are not part of the dominant culture. While someone with a weak sense of ethnic identity may internalize these negative stereotypes (Tajfel, 1978), a person with a strong sense of ethnic identity is less likely to internalize negative stereotypes. Instead, a person with a strong ethnic identity will reject the negative stereotypes imposed by the dominant culture and will view their own culture in a positive light and will draw on their culture's strengths and values (Phinney, 1989). Third, ethnic identity has been shown to act as a protective factor for a variety of issues. The following sections will illustrate in greater detail how ethnic identity functions as a protective factor in the domains of self-esteem, racial/ethnic discrimination, perceived stress, and health behaviors.

**Ethnic identity and self-esteem.** Ethnic identity has been shown to be related to self-esteem for adolescents and college students from many ethnic groups (Phinney, 1992; Umana-Taylor & Updegraff, 2007; Phinney, Cantu & Kurtz, 1997). Phinney (1992) showed that ethnic identity was positively correlated with self-esteem in Asian, African American, Hispanic, and multi-racial high school and college students from an urban, ethnically diverse area. Although the college sample had higher ethnic identity achievement scores than the high school sample, the positive correlation between ethnic identity and self-esteem existed among the populations of color for both groups. Ethnic identity was not correlated with self-esteem among the Caucasian college students, but it was for the Caucasian high school students who were ethnic minorities in their school setting (Phinney, 1992). These results were replicated with African American, Hispanic, and Caucasian high school students from predominantly African American or predominantly Hispanic high schools. Ethnic identity predicted self-esteem for each group

(Phinney, Cantu & Kurtz, 1997). Similarly, Umana-Taylor and Updegraff (2007) showed that ethnic identity predicted self-esteem for 273 Latino freshmen and sophomores attending Midwestern high schools and that self-esteem buffered some of the negative effects of perceived discrimination.

While it is not the focus of the present study, it is important to highlight the relationship between ethnic identity and self-esteem because self-esteem is a well established predictor of psychological well-being (Rosenberg, Schooler, Schoenbach & Rosenberg, 1995). The positive relationship between these two constructs, then, provides evidence that ethnic identity may also have a positive affect on psychological well-being (Phinney, Cantu & Kurtz, 1997). It should be noted, however, that, while positively correlated, ethnic identity and self-esteem are psychometrically distinct (Smith et al., 1999). Another important finding from the previously mentioned studies is the positive correlation between ethnic identity and self-esteem for Caucasian students when they are ethnic minorities in their setting (Phinney, 1992; Phinney, Cantu & Kurtz, 1997). These findings further exemplify how ethnic identity applies to all ethnic groups, even the majority group given the proper setting.

**Ethnic identity and discrimination.** Many people of color in the United States face discrimination based on their racial and/or ethnic background. Such discrimination is detrimental to an individuals physical and mental health (Finch, Kolody, & Vega, 2000; Williams et al., 1997) leading to depression (Mossakowski, 2003; Torres & Ong, 2010), negative affect, and anxiety (Brondolo et al., 2008). A strong ethnic identity, however, can buffer the negative effects brought on by discrimination (Branscombe, Schmitt and Harvey, 1999; Mossakowski, 2003; Torres & Ong, 2010). Branscombe, Schmitt and Harvey (1999) demonstrated that perceived discrimination was related to lower self-esteem, negative emotional

states, and a poorer sense of collective well-being among African American college students and adults. Ethnic identity, however, was shown to partially reduce the negative outcomes of this perceived discrimination, leading to a greater sense of personal and collective well-being among this population.

Mossakowski (2003), similarly, found that, among foreign and U.S. born Filipino adults living in the United States, a strong ethnic identity buffered the stress brought on by perceived discrimination and reduced symptoms of depression that are associated with such discrimination. Torres and Ong (2010) demonstrated that ethnic identity buffers depressive symptoms brought on by discrimination among Latino adults living in the United States as well. Interestingly, ethnic identity commitment was specifically identified as the moderating factor between discrimination and depression among Latinos. Latinos with high ethnic identity commitment scores reported fewer depressive symptoms following discriminatory events than those with low commitment scores. Latinos with high ethnic identity exploration scores, however, seemed more susceptible to discrimination reporting more depressive symptoms following discriminatory event than those who had low exploration scores (Torres & Ong, 2010). These findings suggest that, among Latinos, ethnic identity may not serve as a protective factor until the final stage, or “achievement”, of ethnic identity development.

Taken together, these studies provide evidence that ethnic identity buffers against the negative outcomes of discrimination and serves to protect an individual's emotional and mental health in the presence of adversity. The inconsistencies in the afore-mentioned studies, however, make it difficult to compare the protective effects of ethnic identity between different ethnic groups. The differing methodologies also make it difficult to generalize the effects of ethnic

identity to other groups. More inclusive research is needed to examine the protective potential of ethnic identity across ethnic groups and issues.

**Ethnic identity and stress.** Stress is present in almost every aspect of life. Experiencing stress is normal and, to an extent, healthy. When experienced chronically, however, stress can be physiologically, behaviorally, and psychologically detrimental. Chronic stress can affect many physiological systems within the body making an individual more susceptible to diseases such as cardiovascular disease (Hamer, Endrighi, Veneraju, Lahiri, & Steptoe, 2012), hypertension (Hamer & Steptoe, 2012), metabolic syndrome (Kyrou & Tsigos, 2009), cancer, and suppressed immune function (Kemeny, 2007). The longer an individual experiences chronic stress, the more likely they are to develop one or more of these physiological symptoms. Stress is often an antecedent for various psychological disorders as well. Depression (Hammen, 2005) and anxiety (Faravelli & Pallanti, 1989), for example, are often preceded by stress. If left untreated, depression and anxiety can lead to trouble concentrating, difficulty at school, hopelessness, and suicide (Abramson, Metalsky, & Alloy, 1993; Sareen et al., 2005). While more research is needed in these areas, the physiological and psychological effects of stress are outside the scope of this paper.

This paper, instead, will focus on the behavioral effects of stress. Stress can affect behavior in a variety of ways; it can alter sleeping, eating, exercise, and substance use habits. Stressful experiences throughout the day and the anticipation of stressful experiences the following day can both contribute to sleep loss and sleep disorders (Akerstedt, 2006; Schneiderman, Ironson, & Siegel, 2005). Substance use is also increased due to stress as individuals use alcohol (Broman, 2005) and tobacco (Ng & Jeffery, 2003) to cope with stress. Eating habits may also be affected by stress. Torres and Nowson (2007) found that the presence

of stress can either increase or decrease food consumption. Individuals with a high level of stress, however, are more likely to consume foods that are higher in fat and caloric values (Ng & Jeffery, 2003; Cartwright et al., 2003). Stress also affects exercise with highly stressed individuals reporting a lower frequency of exercise than their lower stressed counterparts (Ng & Jeffery, 2003). Each of these behaviors are associated with their own health risks but, when combined with stress, they may exacerbate the physiological and psychological symptoms of stress previously stated in this paper. These serious health risks associated with stress make it clear that preventative protective factors need to be identified.

Ethnic identity has been shown to buffer the effects of race-related stress (Mossakowski, 2003), but daily life stress and ethnic identity have not been significantly studied. Because ethnic identity buffers many of the negative affects of discrimination (Branscombe, Schmitt and Harvey, 1999; Mossakowski, 2003; Torres & Ong, 2010), it is presumed that individuals with a strong ethnic identity will experience less stress due to instances of discrimination. It should also be noted that adolescents with a stronger sense of ethnic identity and self-esteem are more likely to deal with discrimination proactively instead of passively or aggressively (Phinney & Chavira, 1995). It is unclear, however, if proactive strategies for dealing with discrimination are used for other sources of daily stress.

Very few studies have focused on the role of ethnic identity in buffering the negative effects of daily stress. A few studies have documented a relationship between ethnic identity and stress. Kiang, Gonzales-Backen, Fuligni, Yip, & Witkow (2006) examined concepts similar to ethnic identity, ethnic regard and ethnic centrality, and their ability to buffer the effects of daily stress among Mexican and Chinese adolescents. Ethnic regard refers to positive feelings about one's own ethnic group and ethnic centrality refers to the extent that one feels their ethnicity is a

central part of their self-concept. Kiang, Gonzales-Backen, Fuligni, Yip, & Witkow (2006) found that ethnic regard buffers the negative effects of stress for Mexican and Chinese adolescents. They showed that adolescents with low ethnic regard reported lower levels of daily happiness as they experienced more daily stressors. Adolescents with high ethnic regard, however, did not report lower levels of daily happiness as their amount of daily stressors increased. Ethnic regard buffered the negative effects of stress and prevented stress from impacting the happiness of the adolescents (Kiang, Gonzales-Backen, Fuligni, Yip, & Witkow, 2006).

These results provide support for the notion that ethnic regard can serve as a buffer against the negative effects of daily stress. While ethnic regard and ethnic identity are two distinct concepts, they are somewhat similar. Ethnic regard is commonly used in racial identity research and, as previously stated, refers to one's thoughts about their own ethnic group. Because positive thoughts about one's ethnic group are a part of ethnic identity commitment and achievement (Phinney, 1992), it is assumed that someone who has a high ethnic identity commitment also has high ethnic regard. Therefore, it is conceivable that ethnic identity may also have the same stress-buffering effects of high ethnic regard. Kiang, Gonzales-Backen, Fuligni, Yip, and Witkow (2006), however, only focused on Mexican and Chinese adolescents so it is not clear if the same stress buffering effects of ethnic regard or ethnic identity would be present in other ethnic and/or age groups. More research needed to determine if ethnic identity buffers against the effects of stress similarly for each ethnic group.

**Ethnic identity and health behaviors.** Ethnic identity is widely believed to be a protective factor for mental health; it is positively related to self-esteem (Phinney, 1992; Umana-Taylor and Updegraff, 2007; Phinney, Cantu & Kurtz, 1997), it can buffer the effects of

discrimination (Branscombe, Schmitt and Harvey, 1999; Mossakowski, 2003; Torres & Ong, 2010) and race-related stress (Mossakowski, 2003), and it decreases the chances for adolescents to feel withdrawn, anxious, or depressed (Shrake & Rhee, 2004). Other studies have focused on the risk reduction potential of ethnic identity in terms of behavioral health by demonstrating that a strong sense of ethnic identity reduces externalizing problem behaviors like aggression and delinquency among Koreans (Shrake & Rhee, 2004), and drug use among Puerto Ricans (Brook, Whiteman, Balka, Win, & Gursen, 1998) and African American adolescents (Brook, Balka, Brook, Win, & Gursen, 1998). Very few studies, however, have assessed the impact that that ethnic identity may have on physical health or health behaviors directly related to physical health such as fruit and vegetable intake or physical activity. More research is needed in this area to find out if ethnic identity has positive effects on physical health and healthy decision making.

### **Research Questions**

Taken together, this study aims to identify if there are relationships between ethnic identity and health behaviors and ethnic identity and stress among college students from a variety of ethnic groups. The research questions this study aims to answer, specifically, are:

**Research Question 1: Is a high ethnic identity score positively associated with health behaviors and negatively associated with perceived stress?**

- 1a. Is a high ethnic identity score positively associated with fruit consumption?
- 1b. Is a high ethnic identity score positively associated with vegetable consumption?
- 1c. Is a high ethnic identity score positively associated with engagement in physical activity?
- 1d. Is a high ethnic identity score negatively associated with perceived stress?

**Research Question 2: How do ethnic groups differ in terms of ethnic identity, health behaviors, and perceived stress?**

- 2a. How do ethnic groups differ in terms of their ethnic identity?
- 2b. How do ethnic groups differ in terms of their fruit intake?
- 2c. How do ethnic groups differ in terms of their vegetable intake?
- 2d. How do ethnic groups differ in terms of their physical activity?
- 2e. How do ethnic groups differ in terms of their level of perceived stress?

**Research Question 3: How do the relationships between ethnic identity and health behaviors and ethnic identity and perceived stress differ between ethnic groups?**

- 3a. How does the relationship between ethnic identity and fruit intake differ between ethnic groups?
- 3b. How does the relationship between ethnic identity and vegetable intake differ between ethnic groups?
- 3c. How does the relationship between ethnic identity and physical activity differ between ethnic groups?
- 3d. How does the relationship between ethnic identity and perceived stress differ between ethnic groups?

## **CHAPTER III**

### **METHODOLOGY**

#### **Participants and Setting**

This study consisted of 453 college students aged 18-56. There were 153 males, 296 females, and three transgender participants. One participant did not indicate their gender. Table 1 provides the ethnic and gender breakdown of the participants. Because Native American and “Other” groups were so small (5 and 3, respectively), they will not be included in the analyses. The majority (200) of the participants were freshmen, 66 were sophomores, 78 were juniors, 104 were seniors, and five were graduate students. To be included in the study the participant had to be a Wichita State University student and over the age of 18.

#### **Procedure**

Participants were recruited from Wichita State University. The survey was uploaded online using Qualtrics and was made available to the participants through the university’s SONA system, an online database of research opportunities for students. Participants who completed the survey through SONA were given extra credit. A link to the online survey was also emailed to members of three student cultural organizations within the university that agreed to participate in the study.

The study was approved by the university’s Institutional Review Board. Upon agreement to participate in the survey, participants were given consent forms notifying them of their privacy. The consent form also informed participants that they could withdraw from the study at any time. The participants were instructed to keep a copy of the consent for their records.

## **Measures**

An 80-item survey was created by the Behavioral Community Research and Action Team at Wichita State University as part of the Health, Well-Being and Identity Project. The survey consisted of a series of questions and scales that asked about ethnic identity (Multigroup Ethnic Identity Measure-Revised [MEIM-R]), mental health (PANAS, Rosenberg Self-Esteem Scale, CESD-R, & the Perceived Stress Scale), and behavioral health (physical health, nutritional health, & substance use). The present study, however, is only considering information gathered from the MEIM-R, Perceived Stress Scale, and behavioral health. Table 2 lists all the questions that will be included in the analysis for this study. The questions and scales used in this study are described below.

**Multigroup Ethnic Identity Measure Revised (MEIM-R).** The Multigroup Ethnic Identity Measure Revised (MEIM-R; Phinney & Ong, 2007) is comprised of six items that measure two factors of ethnic identity, exploration and commitment. The six items can also be considered as an overall measure of ethnic identity. Table 3 reports the Cronbach's alpha levels of the MEIM-R in the normative and current samples.

The MEIM-R score was based on the recommendation Phinney & Ong (2007) included in their article. Each item was based on a 5-point Likert scale ranging from 1(Strongly Disagree) to 5(Strongly Agree). The items were then added and averaged to create a total ethnic identity score, an ethnic identity exploration score, and an ethnic identity commitment score.

The exploration scale consisted of three items. An example of an item from the exploration scale is “I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.” The commitment scale also consisted of three items. An

example from the commitment scale is “I have a strong sense of belonging to my own ethnic group.”

**Perceived Stress Scale.** The Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988) is a 10-item scale designed to measure the degree to which people find life events stressful. Central to this scale are feelings that one’s life is unpredictable, uncontrollable, and overloaded (Cohen, Kamarck, & Mermelstein, 1983). A more recent study of the PSS revealed that two factors exist within the scale; perceived helplessness, and perceived self-efficacy (Roberti, Harrington, & Storch, 2006). The PSS has acceptable psychometric properties with Cronbach’s alpha coefficients of .89, .85, and .82 for the 10-item scale, perceived helplessness factor, and perceived self-efficacy factor, respectively (Roberti, Harrington, & Storch, 2006). The Cronbach’s alpha for the PSS in the current sample is reported in Table 3. Each PSS question is based on a 5-point Likert scale ranging from 0 (Never) to 4 (Very often). The PSS score was calculated as recommended by Cohen & Williamson, 1988.

**Behavioral Health.** The survey included seven questions about health behaviors. Four questions asked about nutrition, and three questions asked about physical activity. The physical activity and nutrition questions were modeled after Healthy People 2020 objectives (United States Department of Health and Human Services, 2015). Examples of the physical activity are “During the past week, how many minutes did you spend engaging in vigorous physical activity that caused HEAVY sweating or LARGE increases in breathing or heart rate?”. The nutrition questions deviated from the Healthy People 2020 standards. Healthy People 2020 nutritional data is collected via interviews and uses cups per 1,000 calories during the last 24 hours.

Because the present study collected data via survey, the researchers were not able to collect such detailed data. Servings of fruit and vegetables in the past 24 hours were used instead of cups.

### **Plan for Analysis**

**Research Question 1.** Is a high ethnic identity score positively associated with health behaviors and negatively associated with perceived stress?

An overall ethnic identity score is created by calculating the mean of the six MEIM questions. The participants with the top third and bottom third of ethnic identity scores will be compared using multivariate analysis of variance (MANOVA) to determine if there are any differences between the two groups in terms of health behaviors (fruit and vegetable intake and physical activity) and perceived stress. If the overall MANOVA is found to be significant, the four dependent variables will be considered separately using a Bonferroni adjusted  $p$  value of .0125. Table 4 describes the ethnic and gender breakdown of the two groups used for this analysis.

**Research Question 2.** How do ethnic groups differ in terms of ethnic identity, health behaviors, and perceived stress?

A MANOVA will be run to determine if ethnic groups differ in terms of their ethnic identity, fruit intake, vegetable intake, physical activity, and their level of perceived stress. If the overall MANOVA is significant, the five dependent variables will be considered separately using a Bonferroni adjusted  $p$  value of .01. Follow-up analyses will be conducted using analysis of variance (ANOVA) for each dependent variable that is found to be significant.

**Research Question 3.** How do the relationships between ethnic identity and health behaviors and ethnic identity and perceived stress differ between ethnic groups?

Multiple regression will be used to compare the relationships between ethnic identity and fruit intake, vegetable intake, physical activity, and stress between different ethnic groups. Prior to conducting the multiple regression a random sample of 60 Caucasian participants will be selected for inclusion in the analysis. The selection of a random sample of Caucasian will control for any additional power the group may have due to its relatively large sample size. The multiple regression will be conducted for each ethnic group using fruit intake, vegetable intake, physical activity, and perceived stress to predict ethnic identity. The B weights for each group will be compared using binary dummy variables and interaction variables. A binary dummy variable will be created for each ethnic group and interaction variables will be created for each predictor variable. The interaction variables will be calculated by multiplying each of the predictor variables by each of the binary dummy variables. Separate regressions will then be conducted using the dummy and interaction variables for each predictor variable to determine if there are significant between-group differences.

## **CHAPTER IV**

### **RESULTS**

#### **Research Question 1: Is a high ethnic identity score positively associated with health behaviors and negatively associated with perceived stress?**

SPSS was used to divide the sample into three groups based on ethnic identity scores. The group with the lower third of ethnic identity scores included people who scored 1 to 2.50 and the higher third group included participants who scored 3.17 to 5 on the ethnic identity scale. A one-way between-groups multivariate analysis of variance was performed to investigate differences in health behaviors and perceived stress between participants with high ethnic identity scores and participants with low ethnic identity scores. Four dependent variables were used: fruit intake, vegetable intake, physical activity, and perceived stress. The independent variable was ethnic identity. Preliminary assumption testing was conducted to check for normality, linearity, homogeneity of variance, and multicollinearity with no violations. There was a significant difference between participants with high ethnic identity and individuals with low ethnic identity on the combined dependent variables,  $F(4, 239) = 6.115, p < .001; \Lambda = .91$ ;  $\eta^2 = .093$ . When the results for fruit intake, vegetable intake, physical activity, and perceived stress, were considered separately with a Bonferroni corrected  $p$  value of .0125, the only variables to reach significance were vegetable intake,  $F(1, 242) = 10.40, p < .001, \eta^2 = .041$ , and perceived stress,  $F(1, 242) = 11.22, p < .001, \eta^2 = .044$ . Inspection of the mean scores showed that people with a high ethnic identity eat more vegetables ( $M = 2.92, SD = 1.45$ ) and experience less perceived stress ( $M = 15.46, SD = 6.36$ ) compared to those who have a low ethnic identity ( $M = 2.35, SD = 1.33; M = 18.44, SD = 7.34$ , respectively). Table 5 shows the means for both groups.

**Research Question 2: How do ethnic groups differ in terms of ethnic identity, health behaviors, and perceived stress?**

Because the Caucasian group was considerably larger than the other groups, a random sample of 60 Caucasian participants was created for the following analyses. The random sample was created via an online random number generator. Caucasian participants identified by the random number generator were included in the following analyses.

A one-way between-group multivariate analysis of variance was performed to investigate the differences in health behaviors, perceived stress, and ethnic identity between ethnic groups. Five dependent variables were used: fruit intake, vegetable intake, physical activity, perceived stress, and ethnic identity. The independent variable was ethnicity. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, and homogeneity of variance-covariance matrices. A violation of the assumption of equal variances was revealed for the physical activity measure,  $F(4, 173) = 3.61, p = .007$ . Due to this violation, a more conservative alpha level of .005 was used in determining significance for the physical activity variable. There was a significant difference between participants from different ethnic groups on the combined dependent variables,  $F(20, 561.46) = 1.84, p < .014$ ;  $\Lambda = .810$ ;  $\eta^2 = .051$ . A Bonferroni corrected  $p$  value of .01 was used to determine significance for the fruit intake, vegetable intake, perceived stress, and ethnic identity variables. Due to violating the assumption of equality of variance a more stringent  $p$  value of .005 was used to determine significance for the physical activity variable. The only variable to reach significance was ethnic identity,  $F(4, 173) = 6.24, p < .001$ ;  $\eta^2 = .126$ . A one-way analysis of variance (ANOVA) was used to examine the differences in ethnic identity between different ethnic groups. The ANOVA confirmed that there were significant differences in ethnic identity between participants from

different ethnic groups,  $F(4, 214) = 8.08, p < .001$ . The results revealed that participants in the Caucasian and Multi-ethnic groups ( $M = 2.52, SD = .97$ ;  $M = 2.60, SD = .92$ , respectively) had lower ethnic identity than participants who were Asian ( $M = 3.25, SD = .88$ ), African American ( $M = 3.33, SD = 1.00$ ), or Hispanic ( $M = 3.33; SD = 1.08$ ). Table 6 reports the descriptives for each group.

**How do the relationships between ethnic identity and health behaviors and ethnic identity and perceived stress differ between ethnic groups?**

Standard multiple regression was used to examine differences in the relationships between ethnic identity and the health related variables: fruit intake, vegetable intake, physical activity, and perceived stress. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, or homoscedasticity. Subsequently, the same analysis was conducted for each ethnic group: Asian, African American, Caucasian, Hispanic, and Multi-ethnic, for the purpose of generating B weights for each independent variable. Using a Bonferroni corrected  $p$  value of .01 none of the models reached statistical significance, indicating that the combination of fruit intake, vegetable intake, physical activity, and perceived stress did not reliably predict ethnic identity for any of the ethnic groups. Results for the overall models are presented in Table 7. The unstandardized B weight of each independent variable was examined for between-group comparison of the relationship between ethnic identity and fruit intake, vegetable intake, physical activity, and perceived stress. The only variable to reach significance, using a Bonferroni corrected  $p$  value of .01 was fruit intake among the Multi-ethnic group  $B = .694, t(21) = 3.04, p = .006$ . None of the other variables reliably predicted ethnic identity and, therefore, comparisons were not conducted. Table 8 presents the unstandardized B weights for each ethnic group.

## **CHAPTER V**

### **DISCUSSION**

The purpose of this study was to examine ethnic identity's role as a protective factor for health behaviors and stress among Midwestern college students from different ethnic groups. The results indicated that ethnic identity is positively associated with increased vegetable intake and negatively associated with the effects of stress as people with higher ethnic identity scores reported eating more vegetables and reported experiencing less perceived stress than people who reported lower ethnic identity scores. These results are consistent with the findings of previous studies (Mossakowski, 2003; Kiang, Gonzales-Backen, Fuligni, Yip, & Witkow, 2006) demonstrating that ethnic identity acts as a buffer for the effects of stress. The current study, for example, demonstrated that high ethnic identity scores were negatively associated with perceived stress scores. Participants with high ethnic identity scores were more likely to perceive less stress scores than participants with low ethnic identity scores. The significantly lower perceived stress scores of people with high ethnic identity scores indicate that people with higher ethnic identity scores may be more likely to perceive their life as predictable and controllable and, therefore, less stressful (Cohen & Williamson, 1988). The high ethnic identity group also consumed more vegetables than the low ethnic identity group, indicating that ethnic identity scores are positively associated with vegetable intake. Individuals with a high ethnic identity may be more aware of their ethnic group's traditional diet, exposing them to a wider array of vegetables than individuals who have yet to explore their ethnic identity. The lower level of stress reported by this group may also play a role in their increased vegetable consumption as stress has been shown to negatively influence nutritional choices. (Ng & Jeffery, 2003; Cartwright et al., 2003). It is acknowledged that other factors, such as socioeconomic status,

may play a role in the health and well-being of individuals in regards to access to healthy foods. Future research may wish to take this into consideration. Because the current study consisted of a convenience sample of 453 college students attending a Midwestern university, socioeconomic status was not factored into the analysis. The differences between the high ethnic identity and low ethnic identity groups did not reach statistical significance with regard to fruit intake and physical activity.

The African American, Hispanic, and Asian groups reported significantly higher ethnic identity scores than their Caucasian or Multi-ethnic counterparts. This finding is consistent with much of the previous research involving ethnic identity stating that non-majority ethnic groups often times report higher levels of ethnic identity than the ethnic majority (Phinney, 1992; Phinney, Cantu & Kurtz, 1997; Petersons, Rojhani, Steinhaus, & Larkin, 2000). Identity issues due to historical discrimination, prejudice, and racial distinctiveness may catalyze ethnic identity development in groups of color such as Asians, African Americans, and Hispanics. When faced with identity issues due to ethnicity, an individual may be more likely to examine their ethnicity, forcing them to begin the process of ethnic identity development (Phinney, 1992). Caucasians, on the other hand, may not face many issues due to their ethnicity and, therefore, will not be pushed into developing an ethnic identity. Similarly, many Caucasian participants may not have thought about their ethnicity apart from being Caucasian, White, or American as European ethnic groups are not particularly salient in the area where the study was conducted. Only 18% of the Caucasian participants in the current study listed a specific ethnicity (i.e. Irish American, German American, etc.).

Contradictory to Phinney's (1992) findings, however, the Multi-ethnic group in the current sample also had significantly lower ethnic identity scores than the Asian, African

American, and Hispanic groups. There are a few differences between the current sample and Phinney's (1992) sample that might explain this difference. First, Phinney's sample was collected in the early 1990's, approximately a decade before the United States Census recognized Multi-ethnic individuals (Lee & Bean, 2004). Perhaps Multi-ethnic adolescents at this time felt pressured to identify with only one of their ethnic backgrounds. Second, Phinney's sample was collected in Southern California, a place far more ethnically diverse than the Midwest; Multi-ethnic or multiracial adolescents might have represented their own racial or ethnic group within the setting where the data was collected. Third, this segment of Phinney's data was comprised of adolescents in high school. Because ethnic identity development begins in adolescence (Phinney, 1989), it is conceivable that high school students may be in a foreclosed state of ethnic identity development; committing to their ethnicity without engaging in the exploration process. If this is the case, it is not surprising that Multi-ethnic students may report lower ethnic identity scores in college as they go through the exploration process and reevaluate what their unique combination of ethnicities mean to them. In addition, as the demographics of the United States continue to rapidly change and become more diverse, Multi-ethnic students may attempt to embrace the ethnic heritage of both of their parents instead of choosing one over the other. It may be difficult, therefore, to determine what ethnic identity means to this population. Given these differences, the discrepant findings are understandable. This result represents an addition to the literature by examining ethnic identity at a different developmental stage. Due to the ongoing process of ethnic identity development, future research should gather information on other ages and developmental stages to better understand ethnic identity development in multi-ethnic individuals.

Although the ethnic groups reported different levels of ethnic identity, they were not significantly different in terms of their fruit intake, vegetable intake, physical activity, or perceived stress. These findings are not consistent with national findings that report ethnic disparities in each case. Hiza, Casavale, Guenther, and Davis (2013), report that Hispanic adults eat more fruits and vegetables than African Americans and Caucasians, and that Caucasians eat more vegetables than African Americans. Caucasian men report engaging in physical activity more than Asian, African American, and Hispanic men and Caucasian women report engaging in more exercise than African American and Hispanic women (Kruger, Yore, Solera, & Moeti, 2007). Cohen and Janicki-Deverts (2012) reported people of color tend to report more perceived stress than Caucasians, but the differences between ethnic groups in their most recent sample did not reach statistical significance. The differences between the current sample and national findings may be due to the setting in which the data was collected. The current sample only included students at one Midwestern university. As students of this Midwestern university, everyone had the same access to on-campus food and exercise opportunities and nearby grocers offering fresh fruits and vegetables. As college students, additionally, the participants of this study may be experiencing similar stressors regardless of their ethnicity. Although the findings of the current study differed from larger, national studies, the small sample size of the current study might not provide enough power for these differences to reach statistical significance. More research, with larger samples, is needed in this area among Midwestern college students.

The current study attempted to examine the relationships between ethnic identity and fruit intake, vegetable intake, physical activity, and perceived stress among different ethnic groups using multiple regression. Fruit intake, vegetable intake, physical activity, and perceived stress were used to predict ethnic identity. The resulting equations, however, did not reliably predict

ethnic identity. Furthermore, the only variable to reliably predict ethnic identity was fruit intake among the Multi-ethnic group, indicating a positive relationship between ethnic identity and fruit intake among the Multi-ethnic group. Given the warm climate associated with many ethnic groups, one might assume that the relationship between fruit intake and ethnic identity would be more apparent. Fruit intake, however did not emerge as a significant factor for any ethnic group other than the Multi-ethnic group. More research is needed to determine why this difference exists. Because none of the other variables reliably predicted ethnic identity, comparisons of the relationships between ethnic identity and health behaviors and ethnic identity and perceived stress could not be conducted. It is unclear, at this point, if the relationships between ethnic identity and fruit intake, vegetable intake, physical activity, and perceived stress differ between ethnic groups.

Because ethnic identity is such a complex and dynamic construct (Phinney & Ong, 2007), it is difficult to link it to specific, individual behaviors and the perception of stress. While the results of the current study suggest that ethnic identity and vegetable intake and ethnic identity and perceived stress are related, more research is needed to establish a causal relationship. Future research might want to focus on how ethnic identity may affect health behaviors and the perception of stress.

### **Implications**

The first aim of this study was to examine how ethnic identity affects health behaviors and assess its role as a protective factor across different ethnic groups. The results of the current study demonstrated that people with high ethnic identity are more likely to eat more vegetables and perceive less stress than people with low ethnic identity. These findings are important as they could be used in the formation of future interventions aimed at addressing the health of

college students and establishing healthy dietary habits and stress management techniques among this population.

**Nutrition interventions.** Interventions aimed at increasing the health of college students may have an increased impact by including a cultural education component aimed at fostering ethnic identity development among its participants, as ethnic identity is associated with increased vegetable intake. Engaging students in this process, with a focus on nutrition, may expose them to healthier foods and preparation methods that they may remain oblivious to otherwise. The broad and generalized nature of ethnic identity development would allow such an intervention to target people from different ethnic backgrounds simultaneously, exposing participants to a wider array of healthy options.

In addition to fostering ethnic identity development, it is also important that interventions recognize that ethnic identity is highly variable within and between ethnic groups. In the current study, the Asian, African American, and Hispanic groups reported higher mean levels of ethnic identity than the Caucasian and Multi-ethnic groups, but each ethnic group contained individuals who reported high levels of ethnic identity and individuals who reported low levels of ethnic identity. Resnicow et al. (2009) demonstrated that a print-based intervention aimed at increasing fruit and vegetable intake among African Americans was more effective among those who received newsletters tailored to their ethnic identity than it was for those who received generic, untailored newsletters. While the difference between the two groups was not significant, the participants who received newsletters tailored to their ethnic identity increased their fruit and vegetable intake by 1.1 servings per day over a three-month period compared to the control group who only increased their fruit and vegetable intake by .8 servings during the same time period. Additionally, individuals classified as having an Afrocentric ethnic identity increased

their fruit and vegetable intake, relative to similarly classified individuals in the control group, more than individuals classified as having other types of ethnic identity (Resnicow et al., 2009). It is important, therefore, to understand that individuals within the same ethnic group may be at different stages of ethnic identity development, or may hold differing ideas about their ethnicity. Such findings suggest that interventions may need to be tailored to more specific elements than ethnic group alone.

**Stress management interventions.** The findings of the current study show that individuals with high ethnic identity are more likely to perceive less stress than individuals with low ethnic identity. Interventions aimed at managing or reducing stress among college students might find success by also aiming to increase ethnic identity. Previous studies have demonstrated that ethnic identity buffers the negative effects of race-related stress (Mossakowski, 2003) and leads adolescents cope with discrimination proactively instead of passively (Phinney & Chavira, 1995). Perhaps these stress buffering and coping techniques generalize to daily stress as participants with high ethnic identity in the current sample perceived their lives as less stressful than did their low ethnic identity counterparts. By aiming to increase ethnic identity, interventions may also provide college students with more stress management tools or reduce the amount of situations that are perceived as stressful.

Interventions aimed at reducing stress might also promote physical health. Along with a reduction in alcohol consumption (Broman, 2005) and tobacco use (Ng & Jeffery, 2003), lower levels of stress may promote better sleep (Akerstedt, 2006; Schneiderman, Ironson, & Siegel, 2005), diet (Ng & Jeffery, 2003; Cartwright et al., 2003), and physical activity (Ng & Jeffery, 2003). By reducing substance use behaviors and promoting other healthy behaviors, stress reduction interventions may not only lead to better proximal health outcomes, but may set the

stage for better health outcomes later in life as well. If successful stress management techniques can be established during college and applied throughout adulthood, a person may be less likely to experience negative health outcomes that are caused or exacerbated by chronic stress.

**Health Disparities.** Although ethnic identity may not totally prevent or eliminate health disparities, it may help reduce some of the disparate outcomes associated with health disparities. Because ethnic identity is associated with increased vegetable consumption and decreased perceived stress, it might prove to be a valuable tool in preventing, or delaying the onset of diseases that disproportionately affect marginalized populations. Vegetables are full of nutrients that may reduce the risk of heart disease, diabetes, some forms of cancer, and obesity (United States Department of Agriculture). By consuming more vegetables, individuals may reduce their chances of developing such diseases.

Stress is often implicated as a catalyst of disease development and is seen as a contributor to health disparities (Djuric et al., 2008). By suppressing the immune system (Kemeny, 2007), chronic stress increases the chance for an individual to develop numerous diseases. The results of this study suggest that ethnic identity may not only buffer against the negative effects of stress, as Mossakowski (2003) demonstrated, but it also affects the perception of stress. Because ethnic identity is negatively associated with the number of situations that someone may deem as stressful, the catalytic effects that stress has on disease development may be reduced or eliminated. While this study does not provide conclusive evidence that ethnic identity aids in the reduction of health disparities, it provides evidence that ethnic identity might aid the prevention of some of the negative outcomes associated with health disparities.

## **Limitations**

There are several limitations noted in this study. First, this was a convenience sample and the results may not generalize to other emergent adult populations. Emerging adults in other, more diverse areas of the United States, for example, may have different experiences and conceptions of ethnic identity. Ethnic Identity may be more apparent in more diverse settings and may be associated with different outcomes. Second, the current study only sampled a small number of ethnic groups, all of which had small sample sizes relative to the Caucasian group. While this is representative of the population of this area, the small sample sizes may not have provided the variability needed to detect differences between the groups. Third, the present study used the revised version of the MEIM, the MEIM-R. In addition to being shorter, the MEIM-R has been broken down into two distinct factors, exploration and achievement, which can be studied separately. The present study was concerned with overall ethnic identity and, therefore, used the scale as a whole to measure ethnic identity. While this is psychometrically sound, examining each factor individually may provide additional information about ethnic identity (Phinney & Ong, 2007).

## **Future Research**

Future research investigating ethnic identity would benefit from a mixed-methods approach including qualitative analysis to gather detailed, in-depth information about the participants. Due to the complex nature of ethnic identity, qualitative information may help researchers fully understand how college students view their ethnic identity and how it relates to their current context and health behaviors. Utilization of a mixed-methods approach would provide more insight into how ethnic identity functions as a protective factor among college students.

Future studies might examine how ethnic identity and its associated outcomes differ by gender. It could be possible that ethnic identity develops and/or functions differently for males and females. Such a study might provide valuable information that may add to any nutritional, cultural, or stress reduction interventions on college campuses.

This research could benefit from larger sample sizes, increasing statistical power and effect size of the study. Future research might also benefit from including individuals from other college campuses around the United States; ethnic identity may be more apparent in other areas of the country. Investigating the differences in the ethnic identity of college students in different areas of the United States is another area in which future research may focus. Additionally, comparing college students to emerging adults who are not enrolled in college may be another area for future research, as their life experiences, exposure to stress, and access to fruits and vegetables may be different.

Because many populations of color are faced with many disparate health outcomes, it is important that researchers identify solutions aimed at treating, preventing, and extinguishing health disparities. While ethnic identity does not address all of the root causes of health disparities, the results of the current study suggest that it may be an effective tool for addressing some of the symptoms of health disparities. Although ethnic identity is not sufficient for addressing health disparities, future researchers may want to include it in their health disparities research. Ethnic identity should be included in future health disparity research in combination with other contributing factors such as socioeconomic status, education level, perceived discrimination, residential area, access to medical care, and health practices.

## **Conclusion**

More research is needed to understand how ethnic identity influences health behaviors and stress. The current study attempted to add to the literature by examining the relationships between ethnic identity and health behaviors and stress and comparing these relationships between ethnic groups. Although the current study did not reveal any differences in the relationships between ethnic identity and health behaviors and stress between the ethnic groups, it did reveal that people with high ethnic identity scores eat more vegetables and perceive less stress than people with low ethnic identity. This information might be important to consider when designing health promotion, prevention, or intervention programs for college students or young adults.

As the demographics of the United States continue to evolve, and become increasingly diverse, ethnic identity will continue to be relevant to people from every ethnic group. It is important, therefore, that researchers maintain their ongoing study of ethnic identity and its protective effects with different ethnic groups. Additionally, as the demographics of the United States continue to change, it is crucial that researchers continue to work to prevent health disparities from growing within the diversifying population.

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## APPENDIX

Table 1  
***Participant Demographics***

Ethnicity	Male	Female	Transgender	Total
Asian	24	33	0	57
Black or African American	16	17	0	33
Hispanic or Latino	14	24	1	39
White/ Caucasian*	89	193	1	283
American Indian	0	5	0	5
Multi-ethnic	8	23	1	32
Other	2	1	0	3
Total	153	296	3	452

\*One participant did not indicate their gender

Table 2  
***Questions Included in Analyses***

Behavioral Health

In the past **24 hours**, about how many servings of fruit have you consumed?

In the past **24 hours**, about how many servings of vegetables have you eaten?

During the past week, how many minutes did you spend engaging in vigorous physical activity that caused HEAVY sweating or LARGE increases in breathing or heart rate?

During the past week, how many minutes did you spend engaging in moderate physical activity that caused light sweating or a slight to moderate increase in breathing or heart rate?

Perceived Stress Scale

In the last month, how often have you been upset because of something that happened unexpectedly?

In the last month, how often have you felt that you were unable to control the important things in your life?

In the last month, how often have you felt nervous and “stressed”?

In the last month, how often have you felt confident about your ability

to handle your personal problems?

In the last month, how often have you felt that things were going your way?

In the last month, how often have you found that you could not cope with all the things that you had to do?

In the last month, how often have you been able to control irritations in your life?

In the last month, how often have you felt that you were on top of things?

In the last month, how often have you been angered because of things that were outside of your control?

In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Multi-group Ethnic Identity Measure

In terms of ethnic group (e.g., Irish American, Native American, Mexican American), I consider myself to be

I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.

I have a strong sense of belonging to my own ethnic group.

I understand pretty well what my ethnic group membership means to me.

I have often done things that will help me understand my ethnic background better.

I have often talked to other people in order to learn more about my ethnic group.

I feel a strong attachment towards my own ethnic group.

My ethnicity is: (Categorical)

Please indicate your father's race/ethnicity (use numbers above):

Please indicate your mother's race/ethnicity (use numbers above):

Table 3  
*Cronbach's Alpha Coefficients of the MEIM-R and PSS*

Measure	Normative Sample	Current Sample
MEIM-R	0.81	0.89
Exploration	0.76	0.85
Commitment	0.78	0.88
PSS	0.89	0.86

Table 4  
*Low and High Ethnic Identity group Demographics*

	Male	Female	Transgender	Total
<b>Low Ethnic Identity</b>				
Asian	4	8	0	12
Black	4	2	0	6
Hispanic	4	5	0	9
Caucasian	35	81	1	117
Multi-ethnic	5	10	0	15
<b>Low Ethnic Identity Total</b>	<b>52</b>	<b>106</b>	<b>1</b>	<b>159</b>
<b>High Ethnic Identity</b>				
Asian	13	16	0	29
Black	7	12	0	19
Hispanic	7	15	0	22
Caucasian	21	40	0	61
Multi-ethnic	1	9	0	10
<b>High Ethnic Identity Total</b>	<b>49</b>	<b>92</b>	<b>0</b>	<b>141</b>
<b>Total</b>	<b>101</b>	<b>198</b>	<b>1</b>	<b>300</b>

Table 5

*Means and Standard Deviations of Participants with the Top Third and Bottom Third of Ethnic Identity Scores*

Group	Fruit Intake		Vegetable Intake		Physical Activity		Perceived Stress	
	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI
Low Ethnic Identity	2.30 (1.32)	[2.08, 2.51]	2.35 (1.33)	[2.11, 2.58]	192.83 (224.39)	[153.86, 231.80]	18.44 (7.34)	[17.26, 19.62]
High Ethnic Identity	2.57 (1.26)	[2.33, 2.81]	2.92 (1.45)	[2.66, 3.18]	259.78 (232.57)	[217.13, 302.44]	15.46 (6.36)	[14.17, 16.75]

Table 6

*Means and Standard Deviations by Ethnic Group*

Group	Fruit Intake		Vegetable Intake		Physical Activity		Perceived Stress		Ethnic Identity	
	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI	M (SD)	95% CI
Asian	2.53 (1.53)	[2.15, 2.91]	2.59 (1.34)	[2.20, 2.98]	186.65 (214.92)	[115.87, 257.44]	18.61 (5.66)	[16.71, 20.52]	3.24 (0.91)	[2.97, 3.52]
African American	2.48 (1.38)	[1.92, 3.04]	2.48 (1.78)	[1.91, 3.05]	283.26 (337.01)	[179.95, 386.58]	15.52 (6.67)	[12.74, 18.30]	3.36 (0.95)	[2.96, 3.75]
Hispanic	2.39 (1.15)	[1.91, 2.87]	2.71 (1.30)	[2.22, 3.20]	282.97 (280.68)	[193.98, 371.96]	17.42 (7.31)	[15.03, 19.81]	3.28 (1.09)	[2.94, 3.62]
White	2.61 (1.37)	[2.23, 2.99]	2.82 (1.38)	[2.43, 3.21]	226.35 (221.75)	[155.56, 297.13]	17.31 (7.63)	[15.40, 19.21]	2.53 (0.98)	[2.26, 2.80]
Multi-ethnic	2.38 (1.17)	[1.86, 2.91]	2.50 (1.14)	[1.97, 3.03]	239.46 (241.86)	[142.29, 336.63]	18.62 (6.20)	[16.00, 21.23]	2.60 (0.88)	[2.23, 2.98]

**Table 7**  
*Results for the Overall Regression Models*

Group	SS	df	MS	F	p
Asian					
Regression	5.83	4	1.46	2.06	.102
Residual	31.13	44	0.71		
Total	36.96	48			
African American					
Regression	4.98	4	1.25	1.31	.304
Residual	17.13	18	0.95		
Total	22.12	22			
Hispanic					
Regression	2.85	4	0.71	0.58	.683
Residual	32.15	26	1.24		
Total	35	30			
Caucasian					
Regression	4.36	4	1.09	1.18	.333
Residual	40.59	44	0.92		
Total	44.95	48			
Multi-ethnic					
Regression	9.41	4	2.35	4.24	.011
Residual	11.64	21	0.55		
Total	21.05	25			

**Table 8**  
*Unstandardized B Weights for Each Ethnic Group*

Variable	B	SE(B)	t	p
Fruit Intake				
Asian	0.11	0.10	1.15	.255
African American	0.087	0.18	0.48	.637
Hispanic	-0.003	0.20	-0.02	.988
Caucasian	-0.118	0.10	-1.14	.261
Multi-ethnic	0.557	0.18	3.04	<b>.006</b>
Vegetable Intake				
Asian	-0.158	0.11	1.14	.161
African American	0.093	0.14	0.68	.505
Hispanic	0.141	0.17	0.84	.407
Caucasian	0.185	0.11	1.63	.11
Multi-ethnic	0.308	0.14	2.16	.042
Physical Activity				
Asian	-0.025	0.02	-0.12	.228
African American	-0.053	0.03	-0.35	.11
Hispanic	-0.034	0.03	-1.23	.231
Caucasian	-0.029	0.02	-1.52	.137
Multi-ethnic	0.062	0.03	1.96	.063
Perceived Stress				
Asian	0.001	0.001	2.17	.036
African American	-0.001	-0.001	-0.86	.404
Hispanic	0.000	0.001	0.10	.921
Caucasian	0.000	0.001	-0.15	.884
Multi-ethnic	-0.001	0.001	-1.15	.265