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Resilience as a Moderator Between Food and Housing Insecurity and Mental Distress

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Abstract

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by

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MSW, State University of New York at Buffalo, 1992

BA, University of Notre Dame, 1984

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The prevalence of food insecurity (FI) and housing insecurity (HI) in college students has increased over the last decade along with an associated increase in mental health problems. Studies show significant increases in many markers for mental distress in this population including a higher prevalence of mood disorders, non-lethal self-harm, and attempted and completed suicides, particularly over the last decade. Compounding these challenges is the low level of resilience found in college-age young adults, potentially limiting their ability to cope with and recover from the hardship of FI and HI. This quantitative study, guided by resilience theory and Maslow's hierarchy of needs, addressed whether resilience moderates the level of mental distress stemming from FI and HI by analyzing secondary data from the Spring 2020 American College Health Association's National College Health Assessment, version 3. Although data showed a correlation between both resilience and FI with mental distress, resilience did not moderate the relationships between FI and HI and mental distress. However, results from this study may contribute to positive social change by helping university and mental health personnel better understand the mental distress and basic needs in this population, informing interventions moving forward.

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Dedication

I dedicate this work to my parents, Marie and James McHugh, who inspired me toward excellence and lifelong achievement since childhood, always believing in me. I also dedicate this work to my beautiful and heroic sister, Marie, who tragically passed away in the summer of 2020 during its writing.

Acknowledgments

I am extremely grateful for the support and expertise of my dissertation chair, Dr. Silvia Bigatti, and committee member, Dr. Jesus Tanguma. I aspire to be a teacher and scholar of their magnitude.

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Chapter 1: Introduction to the Study

U.S. college students are experiencing unprecedented levels of food insecurity (FI; i.e., limited access to safe foods of adequate nutritional value; Goldrick-Rab et al., 2017); housing insecurity (HI; i.e., lack of a fixed, adequate nighttime residence; Silva et al., 2017); and mental distress (i.e., emotional suffering characterized by depression and anxiety; Arvidsdotter et al., 2016). At the same time, college-age adults have lower levels of psychological resilience (Cigna, 2020), which is the ability to bounce back from adversity (Dyer & McGuinness, 1996), affecting their ability to cope with FI and HI. Resilience is associated with improved coping and mental well-being (Seligman, 2012), including in the college student population (DeRosier et al., 2013, Turner et al., 2017).

This study aimed to explore whether resilience, a modifiable set of skills and competencies (Masten, 2018; Seligman, 2012), mitigated the mental distress potentially exacerbated by FI and HI in this population. Results of the study may inform future interventions for both clinical personnel and university programs seeking to support distressed college students and offset the severe psychological consequences potentially resulting in the absence of such measures. This chapter presented the study's background information, problem statement, purpose, research questions (RQs) and hypotheses, theoretical frameworks, nature, definitions of variables, assumptions, scope and delimitations, limitations, and significance.

Background

FI and HI in U.S. college students has increased over the last decade due to multiple factors including college affordability and the rising cost of living in the United

States (Goldrick-Rab et al., 2017). Significant portions of college students report basic needs insecurity (Goldrick-Rab et al., 2017; Silva et al., 2017), representing a unique stressor for this population as they struggle to fund housing, food, and college tuition.

Basic needs insecurity in this population is associated with increased levels of mental distress as students seek to navigate college life amid these challenges (Hallett & Freas, 2018). College students have experienced a substantial increase in mental health problems in recent years (Twenge, Joiner, et al., 2018), a trend that is exacerbated by the increasingly common stressors of FI and HI. Studies show increases in many markers for mental distress in this population including an increased prevalence of mood disorders, non-lethal self-harm, suicidal thoughts, and suicide attempts, particularly over the last decade (Duffy et al., 2019; Liu et al., 2019). The experience of FI and HI may worsen these mental health problems in those already at risk and trigger mental distress in otherwise stable students (Hallett & Freas, 2018; Narendorf et al., 2018).

Compounding these challenges is the low level of resilience found in U.S. college-age young adults (Cigna, 2020), potentially limiting their ability to cope with and recover from FI and HI. Resilience, known to be an elastic and rebounding quality allowing individuals to bounce back from adversity (Connor & Davidson, 2003; Dyer & McGuinness, 1996; Rutter, 1987), is associated with improved future achievement and ability to manage stressful emotional states in college students (DeRosier et al., 2013, Turner et al., 2017). Therefore, understanding resilience in this population is both critical for student success and well-being (DeRosier et al., 2013; Hartley, 2012; University of Pennsylvania, 2020) as well as the stability of society moving forward.

Problem Statement

Research shows that U.S. young adults, including college students, are experiencing unprecedented levels of FI, HI (Goldrick-Rab et al., 2017), and mental distress (Duffy et al., 2019) along with a simultaneous low level of resilience (Cigna, 2020). Research shows that FI is associated with depression, anxiety, and sleep disorders (Arenas et al., 2019) as well as suicidal thoughts and attempts (Nagata et al., 2019). Likewise, HI is associated with numerous mental health and substance use concerns, especially in its most severe form, homelessness (Padgett, 2020).

Though resilience has been shown to be protective against these negative mental health states (Seligman, 2012), U.S. young adults in the targeted age group reported the lowest level of resilience of all age groups (Cigna, 2020), potentially impairing their ability to withstand the stress of FI and HI. Though research has shown connections between FI and mental distress (Arenas et al., 2019), HI and mental distress (Padgett, 2020), and resilience and mental health (Dyer & McGuinness, 1996; Masten, 2018; Seligman, 2011), no identified study has explored these variables together or tested this moderation in the current U.S. college student population, ages 18–24.

Purpose of the Study

The purpose of this study was to determine whether resilience moderated the relationship between both FI and HI (predictor variables) and mental distress (outcome variable) in U.S. college students ages 18–24. The study used a quantitative, correlational design with archival data from a large, national survey of U.S. college students, namely

the American College Health Association's (ACHA's) third version of the National College Health Assessment (NCHA; ACHA, 2020d).

Research Question and Hypotheses

This research aimed to answer the following RQs using responses from the Spring 2020 ACHA-NCHA III survey (ACHA, 2020d).

RQ#1: Does resilience moderate the relationship between FI and mental distress in U.S. college students ages 18–24?

Null hypothesis #1: Resilience is not a statistically significant moderator of the relationship between FI and mental distress in U.S. college students ages 18-24.

Alternate hypothesis #1: Resilience is a statistically significant moderator of the relationship between FI and mental distress in U.S. college students ages 18–24.

RQ2: Does resilience moderate the relationship between HI and mental distress in U.S. college students ages 18–24?

Null hypothesis #2: Resilience is not a statistically significant moderator of the relationship between HI and mental distress in U.S. college students ages 18–24.

Alternate hypothesis #2: Resilience is a statistically significant moderator of the relationship between HI and mental distress in U.S. college students ages 18–24.

Theoretical Foundations

The theories that grounded the study include resilience theory and Maslow's hierarchy of needs theory. Resilience theory is a psychological framework for viewing the ability of individuals to cope and bounce back from hardship and adversity (Dyer &

McGuinness, 1996). Resilience is a multidimensional set of traits that lead one to cope and thrive when encountering adversity (Connor & Davidson, 2003).

Maslow's (1943) hierarchy of needs is a framework for viewing human motivation where higher level needs are not pursued until lower-level needs are met. When individuals must remain focused on the provision of basic bodily and safety needs (food, water, shelter, warmth), motivation to meet higher level needs and goals (professional goals, creativity) is hindered (Maslow, 1943). In this study, Maslow's hierarchy of needs theory aided in conceptualizing how unmet basic physiological needs inhibit the pursuit and achievement of more advanced goals (Maslow, 1943) such as higher education. The logical connections between the frameworks presented and the nature of my study include examining how resilience in young adults may buffer the high levels of mental distress likely to accompany FI and HI in this population. Chapter 2 includes a more detailed explanation of these theoretical frameworks.

Nature of the Study

To address the RQs in this quantitative study, I used a quantitative correlational design which is appropriate for exploring relationships or statistical associations between multiple variables (Creswell & Creswell, 2017). The predictor variables were FI and HI, the outcome variable was mental distress, and the moderator was resilience. With a large, nationally representative survey available for the target population, namely the Spring 2020 ACHA's NCHA (ACHA, 2020a), a quantitative design using archival data was an appropriate choice, as it allowed for statistical analysis using survey items representative of the study variables with an extensive number of participants.

Definitions of Terms

Food Insecurity (FI): FI is defined as having limited access to safe foods of adequate nutritional value and includes physical hunger (Goldrick-Rab et al., 2017) and distressing psychological states created by this condition (Silva et al., 2017).

Housing Insecurity (HI): HI is defined as the inability to afford basic rent or utilities, residing in a homeless shelter, a car, or outside (Goldrick-Rab, et al., 2017), or the lack of a fixed, adequate nighttime residence (Silva et al., 2017).

Mental distress: Mental distress is defined as non-specific psychological or emotional suffering often characterized by symptoms of depression and anxiety (Arvidsdotter et al., 2016).

Resilience: Resilience is defined as a rebounding or pliant quality that allows individuals to withstand and bounce back from pressure or adversity (Connor & Davidson, 2003; Dyer & McGuinness, 1996).

Assumptions

For this study, I assumed that survey participants answered questions in a truthful manner, which was critical for ensuring that data were accurate and truly measured the study variables. Additionally, I assumed that the validated scales and questions used in the survey accurately measured their intended constructs. Finally, I assumed that student participation was voluntary and without coercion.

Scope and Delimitations

The research sample I used was limited to U.S. college students between the ages of 18–24, currently enrolled in a participating postsecondary institution. The scope was

limited to this age group and excluded older adult students due to the focus on stressors associated with emerging adulthood, specifically the college transition. Additionally, the time frame for all study measures was the prior 30 days. The variables of FI and HI were chosen over other potential stressors that may be present in this population due to the targeted questions and established scales measuring these topics in the secondary data set.

Limitations

The study was based on a secondary data set and therefore was limited to the items offered on the survey. Though the ACHA reported that only randomized samples from colleges participating in the survey would be included in their final analysis, limits to generalizability remain due to the survey being offered on a voluntary basis and having a 14% response rate. Additionally, three of the study variables (FI, mental distress, and resilience) were tested using short forms of scales embedded in the ACHA survey. Although these short forms are empirically validated, they did limit the scope of responses that may have been elicited if using the original, non-abbreviated versions. Finally, though quantitative survey data are efficient to collect and analyze, the limited choice of responses may have not captured a more nuanced picture of the respondent's situation, feelings, and perceptions that otherwise would have increased the understanding of the relationship between study variables.

Significance

The study is significant in that it fills a gap in understanding whether resilience moderates the relationship between FI, HI, and mental distress for newly emerging adults in college. The results of the study may add to the field's understanding of protective

factors capable of offsetting this population's documented increase in mental distress levels (Twenge, Joiner, et al., 2018). The study may promote social change by informing policy and interventions that address basic physiological and mental health needs, ensuring that more young adults are able to succeed.

Summary

This chapter introduced this quantitative study, which was conducted to determine whether resilience moderated the relationship between FI and HI and mental distress in college students, ages 18–24. Background information was presented on each of the study variables with respect to the target population, highlighting trends regarding student mental health (Duffy et al., 2019), FI and HI (Goldrick-Rab et al., 2017), and resilience levels (Cigna, 2020). This chapter also included the problem statement, purpose, RQs and hypotheses, theoretical frameworks, nature of the study, definitions of key variables, assumptions, scope and delimitations, limitations, and significance. The following chapter provides a detailed literature review on research pertaining to the study's variables and theoretical foundations.

Chapter 2: Literature Review

FI and HI are increasingly common stressors facing U.S. college students (Payne-Sturges et al., 2018). In a large study of U.S. community college students, two thirds reported being food insecure, half reported being housing insecure, and 13% reported being homeless (Goldrick et al., 2017). FI leads to distressing psychological states (Silva et al., 2017), and stressors such as FI and HI are associated with increased levels of mental distress in college students (Hallett & Freas, 2018). College students, the target population for the study, show a substantial increase in mental distress when compared to previous years (Liu et al., 2019), notably from 2014 forward (Twenge, Joiner, et al., 2018), in part due to economic challenges such as FI and HI (Hallet & Freas, 2018). Though resilience is associated with improved mental health (Seligman, 2012) and may be a protective factor against the psychological consequences of FI and HI, studies find that U.S. college-age adults between 18 to 23 years old have lower levels of psychological resilience than all other age groups surveyed (i.e., ages 5–10, 11–13, 14–17, and 24 and over; Cigna, 2020), potentially limiting their ability to bounce back from stressors such as FI and HI.

The purpose of this study was to examine the potentially moderating effect of resilience on the relationship between both FI and HI and mental distress in college students ages 18–24. No prior identified research explored these variables together or tested this moderation for this population. This chapter includes the search strategy, theoretical frameworks, and a literature review of the study variables.

Literature Search Strategy

The literature search was conducted using the following databases: Thoreau, Psycharticles, APA PsycInfo, Sage Journals, PsycINFO, APA PsycBooks, and Google Scholar. The search focused primarily on 2016 to 2021; however, older articles dating back to 1943 were also utilized for historical information regarding theoretical frameworks used in the study. I also utilized citations in key articles to find related material. The initial search terms were *resilience, resilience theory, Generation Z, college students, poverty, mental distress, anxiety,* and *depression*. The following key words were added to the literature search as the study variables were clarified: *perceived stress, Maslow's hierarchy of needs, food insecurity, housing insecurity, homelessness, suicide, young adults, self-determination, campus counseling, USDA ERS Food Security Scale, motivation theory, flourishing,* and *wellbeing.*

Theoretical Foundation

Resilience Theory

Resilience theory is a conceptual framework for viewing the ability of individuals to cope with and rebound from adversity and describes the moderator in the study (Dyer & McGuinness, 1996). Originating from systems theory and related to the notion of homeostasis, resilience is a multidimensional set of traits and processes that allow an individual or system to withstand challenges that threaten its survival or development (Connor and Davidson, 2003; Masten, 2018). Clinical application of resilience theory emerged in the mid-20th century when researchers began to explore the highly variable human responses to extreme stress experienced in World War II and the Great

Depression. These events led to the identification of stress-protective traits found in certain extraordinary individuals who demonstrated high levels of resilience in the face of severe adversity such as concentration camp incarceration or frigid, wilderness conditions (Connor & Davidson, 2003). Scholars often found not only an absence of psychopathological responses, but increased toughness, confidence, and unexpected feats of heroism in the resilient group (Dyer & McGuiness, 1996). Research about human resilience was soon directed toward at-risk children in the 1980's and 1990's, where specific social, cognitive, and academic traits were found to be associated with better outcomes over the lifespan as compared to vulnerable children who lacked these features (Garmezy, 1996; Rutter, 1987).

Armed with these findings, resilience researchers increasingly applied resilience theory to clinical practice and the development of reliable tools of measure (Connor & Davidson, 2003; Wagnild & Young, 1993). Resilience theory expanded beyond its original mechanistic notion from systems theory to include a set of teachable traits and behaviors known to offset mental distress and support future growth, achievement, and positive engagement in life (Seligman & Csikszentmihalyi, 2000). Now widely accepted as a predictor of mental health and a gauge of stress coping capacity (Connor & Davidson, 2003), resilience was used in the current study to measure the ability of college students to cope with the adverse, distressing conditions of FI and HI.

Maslow's Hierarchy of Needs Theory

Maslow's (1943) hierarch of needs theory challenged existing psychological theories of the early 20th century that attributed problematic human behavior primarily to

psychopathology. Maslow (1948) conceptualized human motivation as having a predictable, pyramid-like structure with basic bodily needs at the base, followed by needs for safety, love and affection, self-esteem, and ultimately self-actualization. The theory suggested that when lower-level needs (food, water, shelter, warmth) are met and no longer the focus, the next higher motivational level may emerge. Conversely, having unmet lower-level needs inhibits the opportunity and motivation to pursue more mature endeavors, such as professional and creative goals (Maslow, 1943).

Maslow (1987) later revised his theory to reflect less fixed stages where an incomplete meeting of physical needs may still allow for pursuing higher order goals. Additionally, new stages were added over time, namely cognitive and aesthetic needs when self-esteem needs were met (Maslow, 1970a) and transcendence needs when self-actualization was met (Maslow, 1970b). Maslow's theory has been broadly applied to studies exploring human motivation in various age groups (Crandall et al., 2020), organizational settings (Stefan et al., 2020; Stewart et al., 2018; Urwiler & Frolick, 2008), and fields of study including education (McLeod, 2007; Noltemeyer, et al., 2012) and economics (Lee & Hanna, 2015), allowing researchers to consider the impact of met and unmet physical and social needs on outcomes in these areas.

With this holistic view, Maslow's theory provides a foundation for current research on social determinants of health in understanding individual variations and inequities in health and educational outcomes (Solar & Irwin, 2010). In the present study, Maslow's hierarchy of needs theory provided a framework to view and understand the mental distress and challenge experienced by college students when attempting to

accomplish higher order goals in the presence of unmet food and housing needs. A continued literature review of the impact of unmet basic needs on college students follows in the next section addressing key variables.

Literature Review Related to Key Variables

In this study I explored whether resilience moderated the relationship between both FI and HI and mental distress in college students ages 18–24.

Predictor Variable: FI

As of December 2019, approximately 11.1% of the U.S. population was reported as having FI (Holben & Berger, 2017; Huizar et al., 2020). The U.S. Department of Agriculture's Economic Research Service (USDAERS, 2020a) conducts annual studies of FI by interviewing individuals from approximately 40,000 U.S. households using the National Food Security Survey. Food security levels appear on a continuum of four categories: high, marginal, low, and very low The USDA classifies the first two categories as food-secure households and the latter two as food-insecure households.

An individual's level of FI is determined by responses to a series of questions about food-related concerns and behaviors. High food security households report no problems or stress related to regular access to adequate food. Marginal food security households experience occasional stress related to securing food, but without significant disruption in diet. A low food security level reflects households with reduced quality of desired food but where food quantity is adequate. Very low food security households report both reduced food quality and quantity due to limited resources. A 6-item short form of this USDAERS survey was utilized in the present study to examine FI in the

college student population, utilizing three categories of FI: very low, low, and high/marginal.

Mental Health and FI

Individuals experiencing FI in the United States report worse mental health than food-secure Americans (Arenas et al., 2019). Specifically, FI is associated with higher levels of depression, anxiety, sleep disorders (Arenas et al., 2019; Martin et al., 2016), and suicidal thoughts and attempts (Nagata et al., 2019). A meta-analysis of 57 studies found adults with FI to have a greater likelihood of depression, anxiety, and sleep disorders than food secure adults (Arenas et al., 2019). Additionally, mental illness associated with FI was found to be most pronounced in individuals with the highest self-reported stress (Martin et al., 2016). The association between FI and mental illness has been so strong that FI was recommended by prominent researchers to be included as a key factor in psychiatric screenings (Arenas et al., 2019).

Studies show an association between FI and mental health problems in youth (Poole-Di Salvo et al., 2016) as well as in the general adult population (Arenas et al., 2019). Young adults have been less studied as a group but are also at increased risk for negative outcomes associated with FI due to developmental and economic factors specific to this life stage (Nagata et al., 2019). Results from a nationally representative, cross-sectional longitudinal study following adolescents (ages 11–18) to young adulthood (ages 24–32; $N = 14{,}786$) showed FI as a significant predictor of self-reported depression, anxiety, and suicidality over the prior 12 months, demonstrating the psychological impact of FI on young adult mental health (Nagata et al., 2019).

Mental Health and FI in College Students

Young adults in college have experienced FI at increased levels over the last decade due to multiple factors including a college affordability crisis, the rising cost of living in the United States (Goldrick-Rab et al., 2017), and the economic fallout following the 2008 U.S. Great Recession (Nazmi et al., 2019). Researchers have found that 15% of college students at a large, public, mid-Atlantic university were food insecure, four percentage points higher than the national average (Payne-Sturges et al., 2018). Meta-analysis studies show trends of even greater severity extending back over the previous decade. A review of FI among eight U.S. college studies (N = 52,085) representing data from 27 states between 2006 to 2016 showed that between 21 % and 58.8% (unweighted mean 43.5%) of college students experienced FI as defined by the USDAERS criteria (Nazmi et al., 2019), highlighting the increasingly chronic nature of FI on college campuses.

The impact of FI on college students is far-reaching and associated with higher levels of stress, depression, and physical health problems as well as delayed graduation rates and lower GPAs than their food-secure counterparts (Payne-Sturges et al., 2018). A study of students at an urban university (N = 390) indicated that of the 25% of students experiencing FI, 87.5% reported their academic performance to be somewhat to very affected (Silva et al., 2017). The physical effects of FI are known to be associated with worse academic outcomes (Silva et al., 2017), poor future health status (Nazmi et al., 2019) and the development of numerous chronic health conditions (i.e., obesity, diabetes mellitus; Hernandez et al., 2017; Laraia, 2013; Wu et al., 2019), thereby adding

significant personal and societal burden. With over 20 million U.S. college students representing approximately 40% of Americans between the ages of 18–24 years old (Nazmi et al., 2019), the consequences of FI in this cohort represent a social concern.

Predictor Variable: HI

The shortage of affordable housing in the United States is a well-known and complex phenomenon that has reached crisis levels (Joint Center for Housing Studies of Harvard University, 2019). Over 37 million households are considered cost-burdened regarding housing—that is, paying more than 30% of their income for shelter—while over 18 million households were severely cost-burdened, spending over 50% of total income on housing (Joint Center for Housing Studies of Harvard University, 2019). Since the U.S. 2008 recession, home ownership has dropped to its lowest point since 1970, while rent prices have soared nationwide (Joint Center for Housing Studies of Harvard University, 2019; Rohe, 2017). Specifically, lower income rental units in geographical areas offering adequate employment opportunities are in severely short supply, exacerbating the multiple challenges already experienced by lower income households (Joint Center for Housing Studies of Harvard University, 2019; U.S. Department of Health and Human Services, 2020).

Due to housing cost burden, individuals with HI are more likely to lack funds for essential items (food, medications) and to experience ongoing disruption with access to fundamental services such as education and health care (Rohe, 2017). Further, individuals with HI may be forced to choose substandard housing due to cost, increasing exposure to health risks such toxic mold, inadequate heating, or pest infestation (U.S. Department of

Health and Human Services, 2020). Despite the existence of governmental agencies aiming to ameliorate HI, the U.S. housing affordability crisis continues to exact a substantial toll for individuals and society due to its far-reaching effects on health, employment, and education (Rohe, 2017). The present study examined the effect of HI on college students using survey questions addressing student housing status.

Mental Health and HI

Research shows a significant and bidirectional association between mental distress and HI (Padgett, 2020). Studies have found a higher prevalence of depression, suicidal ideation, substance abuse, and trauma symptoms in individuals experiencing HI than for their housing-secure counterparts, primarily in HI's most severe form, homelessness (Padgett, 2020). Chronic stress and anxiety are common in HI due to the constant preoccupation with securing a nighttime residence (U.S. Department of Health and Human Services,2020). Undesirable or unsafe conditions such as overcrowding are frequently experienced by the HI population and associated with increased stress, disrupted sleep, and overall worse mental health (U.S. Department of Health and Human Services, 2020).

Further, the frequent moves associated with HI have other, less direct, impacts such as inhibiting the building of supportive community connections over time, a stabilizing factor enjoyed by more secure households (U.S. Department of Health and Human Services, 2020). Studies have found long-reaching positive effects when individuals have a choice of neighborhoods offering not only regular, adequate housing, but also low crime rates and stable educational environments for children (Chetty et al.,

2016). Long-term outcomes of families who were assisted in becoming housing-secure in desirable neighborhoods away from areas of high poverty and crime, showed gains in mental health (Graif et al., 2016) as well as improved rates in children's future earnings and college attendance (Chetty et al., 2016).

Mental Health and HI in College Students

The housing affordability crisis combined with soaring college tuition rates has resulted in an increased number of college students experiencing the hardship of HI and homelessness (Goldrick-Rab et al., 2017). Findings emerging from large studies surveying college populations such as the Wisconsin HOPE Lab found that over 50% of students reported HI with 13% reporting homelessness (Goldrick-Rab et al., 2017). College students, particularly community college students, often sacrifice regular, safe housing to pay for tuition, thereby enduring ongoing stress and worry around securing adequate shelter (Broton, 2020; Goldrick-Rab et al., 2017).

The resulting hypervigilance associated with HI leads to anxiety and sleep disturbance, interfering with mental well-being and academic focus (Hallett & Freas, 2018). Of the students experiencing HI in an urban university ($N = 390$), 81% have reported academics being somewhat to very affected because of HI (Silva et al., 2017). Additionally, research shows that a significant percentage of housing insecure students are concentrated in developmental coursework, such as basic literacy and numeracy (developmental writing, 62.4%, reading 57.8%, and math 71%), suggesting that students with the greatest academic challenges often face the added stressor of HI (Wood et al., 2017) and therefore additional barriers to success.

Further, the collection of stressors surrounding HI and homelessness create mental distress in otherwise stable students and may worsen existing mental illness and trauma symptoms in those already at risk (Hallett & Freas, 2018; Narendorf et al., 2018). Though involvement in educational pursuits is noted as a protective factor for mental health, studies show a higher incidence of depression, anxiety, suicide attempts, self-harm, substance use, and risky sexual behaviors among U.S. young adults ages 18-24 experiencing HI or homelessness (Narendorf et al., 2018). With college students in this age range already noted as a stress-vulnerable group with increasingly serious mental health concerns (Duffy et al., 2019), the addition of HI places this population at an even greater risk for poor mental health and educational outcomes (Goldrick-Rab et al., 2017).

FI and HI Together

FI and HI are consequences of limited resources and often found together in college students, particularly community college students (Goldrick-Rab et al., 2017). Though clearly problematic in isolation, FI and HI together further compound a student's stressful preoccupation with securing basic needs, while undermining academic efforts (Goldrick-Rab et al., 2017; Silva et al., 2017; Wood et al., 2017) and mental health (Nagata et al., 2019). Having to choose between allocating funds for tuition, housing, or food represents a unique stressor facing these students, most of whom, ironically, are striving to ameliorate impoverished conditions through educational advancement.

Outcome Variable: Mental Distress

Research shows steadily increasing levels of mental distress and mental illness in the United States since the 1980's (Muennig, et al., 2018). In epidemiological studies, the

National Institute of Mental Health (NIMH, 2020a) broadly categorizes psychological illness as either any mental illness or serious mental illness. In 2019, 51.5 million U.S. adults were experiencing any mental illness, from mild to severe, representing over 20% of the country's adult population (NIMH, 2020a). Over 13 million U.S. adults in this group were classified as having serious mental illness (NIMH, 2020a). Additionally, studies showed a consistent uptick in the total suicide rate in the United States between 1999 and 2018, increasing an alarming 35% over that time frame (NIMH, 2020b). Compounding these concerns, public health researchers have noted a decline in U.S. life expectancy linked to deaths stemming from psychological causes, such as suicides and drug overdoses (Muennig et al., 2018).

Quantifying and measuring the population's mental health has evolved over time (Kessler et al., 2010). Public health measures of non-specific psychological distress were developed following World War II, and tools have been refined and validated since that time for use in both clinical settings and large epidemiological studies (Kessler et al., 2010). The Kessler 10 (K10), and its abbreviated version the Kessler 6 (K6), are examples of such measures, with survey items broadly aligning with psychological classifications from the Diagnostic and Statistical Manual of Mental Disorders (American Psychological Association, 2013). The K6 was utilized in the present study to examine levels of mental distress in the target population, with responses falling into three categories: low/no, moderate, or serious.

Mental Distress in Young Adults

Young adults aged 18-25 represented almost 30% of the 50 million adults found to have any mental illness in 2019, the highest percentage of any age group in the United States (NIMH, 2020a). This cohort was also found to have the highest levels of serious mental illness (8.6%; NIMH, 2020a), depression (13.1%; NIMH, 2020c), suicidal thoughts (11.8%), and suicide attempts (1.8%; NIMH, 2020b) compared to all other age groups studied. Despite these statistics, research showed that young adults with serious mental illness were the least likely to receive mental health treatment of all adult age groups (NIMH, 2020a). These cases of untreated and early onset mental distress and mental illness are especially concerning due to their association with numerous adverse outcomes over the lifespan, including a higher likelihood of severe mood disorders, risk for suicide, and worse employment and educational status (Duffy et al., 2019).

Several comprehensive studies highlight these problematic mental health trends. A large national cross-sectional survey of adolescents aged 12-17 and adults ages 18-25 (N = 178,755) showed increased prevalence of major depressive episodes between 2006 and 2014 by 9.6% in the young adult group but without corresponding increases in mental health care service usage (Mojtabai et al., 2016). Additionally, a nationally representative survey of adults ages 18 and over (N = 398,967) exploring age and population trends in mental health between 2009 to 2019 found a 63% increase among young adults ages 18-25 in major depressive episodes reported in the prior year (from 8.1% to 13.2%) as well as a 71% increase in markers of substantial psychological distress

(i.e., suicidal ideation and attempts) reported in the month prior to the survey (Twenge, Cooper, et al., 2019).

Generational researchers noted these upticks in mood disorders and suicidality among young adults between birth years in the early 1980s and late 1990s (Millennial and Generation Z cohorts, respectively) as coinciding with cultural trends toward ubiquitous smart phone ownership and usage and declines in sleep duration (Twenge, Cooper, et al., 2019). Additionally, though rates of suicidal ideation and attempts increased in both genders by 50% or more between 2011- 2018, rates of psychological distress among female teens and young adults showed especially problematic trends (Duffy et al., 2019). Studies showed an increased number of emergency department visits for female self-inflicted injury, a strong risk factor for completed suicides (Mercado et al., 2017), rising 7.2% per year during 2008-2015 among 15- to 19-year-olds and 2.0% per year for 20- to 24-year-olds between 2001-2015 (Mercado et al., 2017). Of particular concern are trends in females ages 10 to 14, showing an 18.8% annual increase in emergency room visits for self- inflicted injury from 2009 to 2015 and representing the age group experiencing the greatest increase in suicide rate (Mercado et al., 2017). Though these participants in Mercado et al.'s (2017) research were outside of the age parameters of my study, those on the upper end of the age group in 2017 (13- and 14-years old) are now college age.

Mental Distress in Young Adult College Students

Studies show a significant increase in the prevalence of mental health diagnoses and treatment among college students between 2007 to 2017, from 19% to 34%, as well

as a rise in newly enrolled students presenting with mental health conditions (Lipson et al., 2019). Beyond an American issue, studies show over 20% of college students worldwide have diagnosed mental health conditions, over 80% of which were present pre-matriculation, representing a factor predictive of dropping out (Auerbach et al., 2016).

Additionally, research shows an increasing prevalence of mood disorders (such as anxiety and depression), non-lethal self-harm, suicidal thoughts, and suicide attempts in college students, particularly over the last decade (Duffy et al., 2019; Liu et al., 2018). Studies note a substantial increase for all markers of mental distress in this cohort between 2007 and 2018 (Duffy et al., 2019). The results of two large national surveys of undergraduates found severe anxiety increased by 24%, depression by 34%, and overwhelming anger by 13% during this period (Duffy et al., 2019). Additionally, these surveys showed an even higher increase in levels of intentional self-injury (47%), suicidal thoughts (76%), and suicide attempts (58%) over the same time frame (Duffy et al., 2019). With suicidal thoughts and behaviors known to be clear markers of severe mental distress as well as obvious risk factors for completed suicides (Mortier et al., 2018), these statistics are of significant concern. Accordingly, upwards of 95% of university counseling administrators report that addressing these increasingly severe mental health needs represents a top priority at their institution (Lipson et al., 2019).

Research shows these severe, early-onset mental health disorders often manifest during the stress of developmental shifts (Liu et al., 2019; Patten, 2017) such as adolescence or emerging adulthood, including transitioning to college life. Studies find

that an earlier onset of mood disorders is predictive of multiple adverse outcomes, such as more severe chronic conditions that are less responsive to treatment and an increased rate of attempted and completed suicides (American Psychiatric Association, 2013; Kessler et al., 2007; Patten, 2017). College students who bear the additional stress of FI and HI are at even greater risk for psychological problems due to the strong association between self-reported stress and diagnosed mental health disorders (Liu et al., 2019) as well as the association of these stressors with worse mental health (Arenas et al., 2019). These challenges are compounded by increasingly low levels of flourishing (Duffy et al., 2019) and resilience found in college-age adults (Cigna, 2020), potentially limiting their ability to bounce back from these adverse conditions.

Moderating Variable: Resilience

Resilience Research

The concept of resilience is used in many fields of study, all noting the capacity for systems to withstand and successfully adapt to stress and pressure (Dyer & McGuinness, 1996; Masten, 2018; Rutter, 1987). Resilience research in the psychological sciences emerged in the first half of the 20th century in response to widespread trauma and loss experienced in the World Wars and the U.S. Great Depression (Hill, 1949; Seligman & Csikszentmihalyi, 2000). Initially, scholarly study was focused on the expected, adverse outcomes and psychopathology associated with enduring disasters presumed to overwhelm the human capacity to recover (Masten, 2018; Seligman & Csikszentmihalyi, 2000). During this time, severe forms of mental illness such as schizophrenia were viewed as the predictable result of extreme adversity, particularly

when endured at critical developmental periods in the lifespan (Schofield & Balain, 1959).

These early researchers conceptualized resilient individuals as having specific static traits such as invulnerability, invincibility (Anthony & Cohler, 1987) or stress-resistance (Garmezy, 1985). A more fluid concept evolved over time as scholars noted the presence of dynamic, protective mechanisms at work, where seemingly high-risk individuals showed unexpected stress-hardiness and even significant post-traumatic growth in the face of extreme adversity (Alexander, 1998; Lyons, 1991; Rutter, 1987). These curious findings altered the course of resilience research, suggesting the influence of unknown adaptive forces at work that had remained undiscovered when focusing on individual traits and pathology alone (Masten, 2018).

These questions led to an expansion of resilience research to include developmental and systems perspectives by the end of the 20th century (Masten, 2018). No longer viewed as a singular trait within an individual, resilience was increasingly conceptualized as a set of mechanisms or competencies highly influenced by and integrated within family, community, and social contexts (Dyer & McGuinness, 1997; Masten, 2018). Resilience in family systems became a major focus of study, highlighting the multiplicity of influences and pathways emerging over the lifespan, where resilient individuals and families were noted to experience cycles of both breakdown and recovery at various stages of life (Hawley & DeHaan, 1996; Masten & Cicchetti, 2016).

Developmental resilience researchers viewed these transitional periods in the lifespan as crucial junctures and trajectory points with potential for both risk and benefit

(Rutter, 1996). Resilience was becoming more widely accepted as a dynamic process enhanced by exposure to manageable levels of stress in the presence of adequate internal and external supports (Hanson & Gottesman, 2012). Increasingly, specific factors and competencies common to resilient individuals and families began to appear in the literature: problem-solving skills, emotional self-regulation, having hope or faith, desire for mastery or achievement, a sense of life's meaning, and secure relationships including at least one reliable caregiver or mentor (Dyer & McGuinness, 1996; Masten, 2018; Seligman, 2012).

Resilience Interventions and Measures

With these findings in mind, the goal of building resilience became a key clinical objective in treating depression, anxiety, and stress beginning around the new millennium (Connor & Davidson, 2003). However, the desire for empirically based clinical interventions was inhibited by the lack of reliable measures of progress (Connor & Davidson, 2003). Though prior researchers had theorized that resilience offered protection against PTSD in soldiers (King et al., 1998) and was a marker for mental health (Maddi & Khoshaba, 1994), these claims remained unproven, in part due the field's focus on pathology (Connor & Davidson, 2003). The development of numerous tools seeking to quantify resilience ensued, resulting in scales measuring resilience in the general adult population (Wagnild & Young, 1993), as well as in children (Donnon & Hammond, 2007; Ungar & Liebenberg, 2011) and young adults (Block & Kremen, 1996). Still, concerns over generalizability and validity plagued early researchers desiring

to reliably quantify individual resilience levels as well as treatment responses in the clinical setting (Connor & Davidson, 2003).

Seeking to remedy this issue, Connor and Davidson (2003) developed and rigorously tested a new measurement tool, synthesized from the most salient findings from decades of resilience research. The resulting Connor-Davidson Resilience Scale (CD-RISC) drew from Rutter's (1985) focus on problem-solving skills, secure personal bonds, achievement, and humor; Lyon's (1998) focus on patience and pain endurance; and Alexander's (1998) notion of faith, hope, and optimism gleaned from accounts of Sir Edward Shackleton's Antarctic survival expedition in 1912. The original 25-item CD-RISC and its shortened forms (CD-RISC10 and CD-RISC2) have become widely used, validated measures of resilience for both evaluating clinical progress (Connor & Davidson, 2003) and quantifying resilience in individuals and groups, including young adults (Afek et al., 2019) and college students (ACHA, 2020d; Johnson et al., 2015; Madewell & Ponce-Garcia, 2016). The 2-item CD-RISC2 was utilized in this study to assess college student resilience level using scores from 0–8, where higher scores reflected greater resilience.

Resilience as a Buffer between Stress and Psychological States

With reliable measures of resilience in place, ongoing research validated earlier claims of resilience as a modifiable set of factors known to buffer the effects of adversity and reduce negative psychological states (Dyer & McGuinness,1996). For example, meta-analyses showed the positive impact of resilience on managing perceptions of failure to decrease the development of anxiety, depression, and other distressed

psychological states (Johnson et al., 2017). Additionally, studies found that individuals with existing mental illness also benefited from higher levels of resilience, where specific competencies cited by original resilience researchers (having hope, confidence in problem-solving) were found to decrease suicidality in psychotic patients (Johnson et al., 2010).

Resilience studies also expanded in scope to examine the mental health of targeted populations experiencing specific life stressors. Research showed that resilience buffered against depression and anxiety in parents of special needs children (Bitsika et al., 2013) and spinal cord injury patients (Catalano et al., 2011), lessened the rate of traumatic stress in firefighters (Lee et al., 2014), and protected transgender individuals from the negative psychological impact of minority stress (Breslow et al., 2015). Overall, studies have supported the notion of resilience as a buffer between numerous life stressors and negative psychological states in a variety of populations.

Resilience in Young Adults

Measuring the resilience of large groups as a marker of a society's mental health has gained increasing attention and resulted in identification of at-risk sectors of the population, notably U.S. young adults. A recent national survey of 16,500 Americans of all ages revealed that young adults ages 18–23 reported the lowest level of resilience of any age group surveyed (Cigna, 2020). These findings highlighted the social aspects of resilience, with young adults in this age group found to be eight times less likely to believe they had opportunities in life, five times less likely to believe others enjoyed

spending time with them, and more likely to have employment and financial concerns (Cigna, 2020).

Yet, studies of at-risk young adults showed that certain protective factors enhanced resilience levels, such as self-reported good physical health, the ability to view negative situations as temporary and surmountable, and when having emotional outlets and social support (Miller & Bowen, 2020; Narendorf et al., 2018). Additional research showed specific neurobiological processes at work in resilient young adults, such as more highly developed brain regions governing goal-directed behavior and emotional flexibility and regulation (Afek et al., 2019; Sapienza & Masten, 2011; Shi et al., 2019). With resilience known to be modifiable (Seligman, 2012) and strongly associated with mental health in young adults (Turner et al., 2017), these hopeful findings underscore the importance of fostering resilience skills in young adults, including struggling college students.

Resilience in College Students

College students are often viewed as a more privileged and stable subset of the young adult population (Duffy et al., 2019), but research shows that the transition to college offers unique stressors, particularly for first-year undergraduates (DeRosier et al., 2013; Turner et al., 2017). Studies show a similar grouping of positive attributes noted by earlier resilience researchers have a protective effect on college students, notably emotional regulation, engagement, supportive relationships, and flexible and optimistic thinking (Ainscough et al., 2018; DeRosier et al., 2013). Not surprisingly, college resilience research has often focused on academic perseverance and success versus

strictly psychological resilience (Ainscough et al., 2018; Hartley, 2012), yet findings show a significant overlap in markers for both types of resilience (DeRosier et al., 2013).

College student resilience was found not only to aid academic and future professional achievement but to represent an overall marker of maturing abilities to manage stress, regulate emotions, and maintain social supports (DeRosier et al., 2013, Turner et al., 2017). These findings, in addition to concerns over student psychological health following events such as the 2001 U.S. terrorist attacks and multiple school shootings, have led to an increased number of resilience programs on campus since the early 2000's (Gerson & Fernandez, 2013). Such programs have shown promise in helping students to improve mood (Gerson & Fernandez, 2013; University of Pennsylvania, 2020), manage stress (Grant & Kinman, 2012; University of Pennsylvania, 2020), and maintain social connectedness (DeRosier et al., 2013).

One such program, The Penn Resilience Program for College Students at the University of Pennsylvania's Positive Psychology Center, is the longest-running college resilience initiative in the United States (University of Pennsylvania, 2020). From the 1990's to the present day, this program has shown consistent, clinically validated reductions in participant depression and anxiety symptoms (University of Pennsylvania, 2020). Participants learn problem-solving, tolerance of difficult emotions, assertiveness, negotiation skills, relaxation, and detection and management of habitual, troubling thoughts, reporting increased levels of optimism, well-being, and physical health upon program completion (University of Pennsylvania, 2020). These findings add support to the notion that resilience is modifiable and associated with improved mental health in the

college student population. Given the substantial number of U.S. college students currently experiencing mental distress (Duffy et al., 2019), including the added stressors of FI and HI (Goldrick-Rab et al., 2017), these interventions may bear increasing consideration.

Summary and Conclusions

In this chapter, I presented a background of the study's theoretical frameworks, Resilience Theory and Maslow's Hierarchy of Needs Theory, and the key variables of FI, HI, mental distress, and resilience as relating to the college student population. I reviewed scholarly articles on the variables individually as well as in combination. Studies showed that mental distress (Duffy et al., 2019), FI, and HI (Goldrick-Rab et al., 2018; Wood et al., 2017) have each increased in prevalence among college students. Simultaneously, research showed that resilience in college-age adults is the lowest of all age groups (Cigna, 2020), suggesting that these young adults may face increasing difficulty coping with the added stress of securing basic needs.

Research to date showed connections between FI and mental distress (Arenas et al., 2019); HI and mental distress (Padgett, 2020); and resilience and mental health (Dyer & McGuinness, 1996; Masten, 2018; Seligman, 2011), but no identified study explored these variables together or tested this moderation. In Chapter 3 I discuss the research design and rationale, methodology, and data analysis strategy used to examine the relationship between both FI and HI and mental distress as moderated by resilience in college students, ages 18–24.

Chapter 3: Research Method

The purpose of this quantitative study was to explore whether resilience moderated the relationship between both FI and HI and mental distress. Archived data were from a comprehensive, national survey of college students, the Spring 2020 NCHA (ACHA. 2020d). This chapter includes a description of the research design and methodology including the target population, sampling method, data collection, instrumentation, RQs, definition of variables, and procedure for accessing archival data. Additionally, this chapter addresses the study's potential ethical issues and threats to internal and external validity.

Research Design and Rationale

Using secondary data from the Spring 2020 NCHA survey (ACHA, 2020d), I explored whether resilience (moderator) buffered the relationship between the stressors of FI and HI (predictor variables) and mental distress (outcome variable) among U.S. college student respondents ages 18–24. Since the aim of the study was to examine the relationship between variables and test this moderation, a quantitative design using a multiple linear regression analysis was appropriate (Laerd Statistics, 2013a) and used to address the purpose of the study.

Methodology

Population

The target population for this study was English-proficient college students between the ages of 18 to 24 currently attending a U.S. college or university who responded to the ACHA's NCHA Spring 2020 survey, third version. The organization

only included those responses for the Spring 2020 survey received before March 16, 2020, for analysis to avoid confounding the results with issues stemming from the COVID-19 pandemic quarantine that began in the United States on that date (ACHA, 2020d). Additionally, students younger than age 18 were excluded from the survey.

Sampling and Sampling Procedures

Originally, 106 postsecondary institutions voluntarily participated in the NCHA Spring 2020 survey, resulting in 69,004 completed surveys. However, only institutions surveying all students and using both a random sampling method and the web survey option were included in the ACHA's final analysis. The ending data set included 50,307 students from 75 schools. The final published report used for this research consists of responses from 39,602 undergraduates from 75 schools due to excluding colleges administering surveys after March 16, 2020, which was the start of the U.S. COVID-19 pandemic lockdown. Of the surveys used, 58.3% of participants were between the ages 18–20, 34.4 % between 21–24, 3.6% between 25–29, and 3.7% age 30 and over. The overall response rate was 14%.

To conduct a power analysis, I used the G*Power 3.1.9.7 software, recommended for correlation and regression analyses (Faul et al., 2009). Using an α error probability of 0.05, the power calculation for this study's regression yielded a power level of 0.9508043 suggesting a minimum sample size of 89 participants. According to the Spring 2020 ACHA-NCHA III survey's executive summary, approximately 43.5% of respondents reported FI and 0.2% HI.

Recruitment, Participation, and Data Collection

The NCHA survey instrument is offered by the ACHA and made available to any U.S. postsecondary institution on a voluntary basis for the purpose of better understanding student health habits and behaviors. In addition to the variables used in the present study, the survey included sections on physical health (nutrition, physical activity, food intake), medical conditions, academic performance, relationships, violence, substance use, sexual behavior, and sleep. These survey topics support the organization's mission of enhancing the health and well-being of the college community by gaining insights into current student health and behavior trends (ACHA, 2020d).

Participating institutions provided students with a letter of introduction and consent describing the content of the voluntary survey as well as confidentiality procedures such as destruction of student email addresses after survey submission. Additionally, students were invited to leave blank any demographic questions they deemed able to compromise confidentiality as well as opt out of answering any or all survey questions. Included in the participant consent letter was a list of campus contact personnel available for debriefing and resource linkage if students needed additional support stemming from exposure to sensitive survey topics.

Archival Data Access Procedure

The ACHA NCHA survey codebooks are publicly available on the ACHA website (ACHA, 2020d). I contacted the ACHA organization's NCHA department via email to request information on gaining access to my data set once approval was received from Walden University's Institutional Review Board (approval no. 04-14-21-0993949).

The ACHA representative forwarded registration instructions and the required proposal form needed to outline the study's purpose. Following my submission of the proposal form and subsequent ACHA approval, the organization forwarded the data set relevant to the study's variables.

Measures

ACHA-NCHA Survey

The ACHA organization was created in 1920 for the purpose of advocacy and research in support of college students and postsecondary institutions (ACHA, 2020b). The ACHA developed the original NCHA survey over 20 years ago, with its first offering in the spring of 2000. The survey has been updated twice since its inception, first in 2008 and again in 2019 (ACHA, 2020e). This study used the ACHA-NCHA III survey, the only version offering a web-based option, embedded and validated scales, and newly added survey items addressing FI and HI (ACHA, 2020d).

The ACHA-NCHA III also offered enhancements to prior survey versions that include improved assessment capability of college student health (ACHA, 2020b; Lederer & Hoban, 2021) though no published reliability and validity values are available for this latest survey tool at present. Overall, the ACHA-NCHA surveys are considered both reliable and valid (ACHA, 2020c) and have been widely used in college research (ACHA, 2020f; Adams & Colner, 2008; Heller & Sarmiento, 2016; Jao et al., 2019; Kisch et al., 2005). The embedded scales used in the survey were chosen due to being accepted as established, reliable instruments (ACHA, 2020c). The study utilized three of these scales listed in the following sections.

FI. Level of food security was measured by the embedded USDA Food Security 6-item Short Scale (USDAERS, 2020a; see Appendix). Survey responses were provided on a 3-point scale of *often true* (2), *sometimes true* (1), or *never true* (0), yielding scores between 0–6, where higher scores showed greater FI. Both raw scores as well as scores collapsed into three categories were provided by ACHA, where 0–1 represented high or marginal food security, 2–4 low food security, and 5–6 very low food security. For the analysis, I used the raw scores presented on a continuous scale. The USDAERS 6-item Short Scale, derived from the original 18-item scale, was found to correctly identify food security levels in 97.1% of households, with full sample specificity and sensitivity levels of 99.4 and 92.0, respectively (Blumberg et al., 1999). Additionally, the short scale was aligned with national statistics on hunger and food security in the U.S. population (USDA ERS, 2020b) and found to be a reliable measure of FI in college students (Cronbach's $\alpha = 0.82$; Gaines et al., 2014).

Sample questions from the USDA ERS 6-item scale are as follows:

For the following statements, please say whether the statement was *often true* (2), *sometimes true* (1), or *never true* (0) for you in the last 30 days:

1. The food that I bought just didn't last, and I didn't have money to get more.

2. I couldn't afford to eat balanced meals.

HI. HI was measured by a survey item asking respondents to choose their current housing arrangement (see Appendix). Respondents chose one of seven housing options, including *on campus*, *fraternity/sorority*, *parent/family*, *off campus*, *temporary or "couch surfing*," *no residence*, or *other* (ACHA, 2020d). In this study, HI is a categorical

variable using two groupings where responses of temporary/couch surfing or no residence (responses numbered 4 and 5, respectively) denote HI and the remaining choices, non-HI.

The ACHA-NCHA III survey question for HI is as follows:

Where do you currently live?

• Campus or university housing (1)

• Parent/guardian/other family member's home (2)

• Off-campus or other non-university housing (3)

• Temporarily staying with a relative, friend, or "couch surfing" (4)

• I don't currently have a place to live (5)

• Other (please specify) (6)

Mental Distress. Mental distress, a continuous variable in the present study, was measured by the embedded K6 for screening non-specific psychological distress (Kessler et al., 2002) which yielded a score between 0 and 24, where higher scores indicated greater levels of psychological distress (see Appendix). Responses to each of the six questions were on a 5-point scale: *all of the time* (4), *most of the time* (3), *some of the time* (2), *a little of the time* (1), and *none of the time* (0). The scores can be divided into three categories, with 0–8 low/no mental distress, 9–12 moderate mental distress, and 13–24 high/serious mental distress, although in the present study the raw total score was used for analyses.

Results of the K6 were shown to correctly correspond with diagnoses of severe mental illness in respondents, with the receiver operating curve yielding a median score

of 0.83 (Kessler et al., 2002). Additionally, the K6 has been found to reliably measure mental distress in college students (Cronbach's α = 0.71; Knowlden et al., 2013). Because of its significant concordance for serious mental illness, the K6 has also been used in large national surveys such as the Center for Disease Control and Prevention's Behavioral Risk Factors Surveillance Survey and the Substance Abuse and Mental Health Services Administration's National Household Survey on Drug Use and Health to assess mental health in the general population (Kessler et al., 2003).

Sample questions from the K6 scale include the following:

During the past 30 days, about how often did you feel…

•…nervous?

•…hopeless?

•…restless or fidgety?

All of the time (4); most of the time (3); some of the time (2); a little of the time (1); none of the time (0).

Resilience. Resilience was measured by the embedded Connor-Davidson Resilience 2-item short scale (CD-RISC2) where higher scores indicated a greater level of resilience (See Appendix). Scores generated were between 0 and 8, in response to two survey questions scored on a 5-item scale: *not at all true* (0), *rarely true* (1), *sometimes true* (2), *often true* (3), and *true nearly all the time* (4). In the study, resilience was a continuous variable with no collapsed categories. The full 25-item CD-RISC scale is considered a reliable and valid instrument for measuring resilience level, demonstrating internal consistency (Cronbach's α = 0.89; Connor & Davidson, 2003) and test–retest

reliability across various mental illness classifications, showing an intraclass correlation coefficient of 0.87 (Connor & Davidson, 2003). Research shows the CD-RISC2 survey correlates significantly with the original 25-item CD-RISC version ($r = 0.78$, $p < 0.001$; Vaishnavi et al., 2007), including for international population studies where both the CD-RISC and CD-RISC2 were demonstrated to be reliable measures of resilience (Cronbach's $\alpha = 0.97$ and 0.79, respectively; Ni et al., 2016).

An example question on the CD-RISC2 scale is as follows:

I am able to adapt when changes occur.

Data Analysis Plan

IBM SPSS Statistics 27 software along with PROCESS Macro for SPSS, Version 3 (Hayes, 2012) was used for the moderated multiple linear regression analysis. Multiple regression is appropriate when predicting a continuous outcome variable from multiple independent variables (Laerd Statistics, 2013a). Additionally, moderation analysis is used to test if the magnitude of a variable's effect on an outcome variable depends on a third variable (Hayes, 2012). In the present study, the analyses tested if the magnitude of FI and HI's effect on mental distress was dependent on resilience in the target population.

I cleaned the data and narrowed it to include only respondents in the 18–24 age range and specific survey items pertinent to the study variables: FI, HI, mental distress, and resilience, as well as demographics that I used to describe the sample. Professional debate exists around how to manage outlier data points, but there is support for examination of each variable's distribution by using SPSS tests for skewness (i.e., measure of data set symmetry) and kurtosis (i.e., measure of outliers relative to a normal

distribution) to clean the data set (Warner, 2012). If outliers are identified, it is possible to remove them or transform the data (such as log of *X*) to increase accuracy of analysis results (Osborne & Overbay, 2004; Warner, 2012).

There are eight assumptions that must be met to perform a multiple linear regression analysis (Laerd Statistics, 2013a):

Assumption #1: There is one continuous dependent variable.

Assumption #2: There are two or more independent variables, either continuous or nominal.

Assumption #3: There is independence of observations, which can be evaluated using the Durbin-Watson test.

Assumption #4: There is a linear relationship between the outcome variable and each of the predictor variables, which can be evaluated by plotting a scatterplot to detect outliers.

Assumption #5: The data shows homoscedasticity of residuals (equal error variances) which can be tested by performing a weighted least squares (WLS) regression.

Assumption #6: The data must not show multicollinearity. This occurs when independent variables are highly correlated with each other and can be tested in SPSS by examining the tolerance value, defined as 1/variance inflation factor (VIF; UCLA Institute for Digital Research and Education, 2021).

Assumption #7: There should be no extreme data points or outliers, which can be addressed using SPSS tests for leverage and influential points, as well as outlier influence by measuring Cook's Distance.

Assumption #8: Residuals (errors) must be approximately normally distributed, which can be checked by plotting a histogram against a normal curve as well as a probability (P-P) plot to determine skewness.

The results of the regression will determine if resilience moderates the relationship between both FI and HI and mental distress to a statistically significant level, $p \leq 0.05$. In other words, the results will show if there is less than a 5% risk of Type 1 error, finding a significant relationship when one does not exist.

Research Questions and Hypotheses

This study explored if resilience moderated the relationship between both FI and HI and mental distress in U.S. college students ages 18–24. The RQs and hypotheses are as follows:

RQ 1: Does resilience moderate the relationship between FI and mental distress in U.S. college students ages 18–24?

Null Hypothesis 1: Resilience is not a statistically significant moderator of the relationship between FI and mental distress in U.S. college students ages 18–24.

Alternate Hypothesis 1: Resilience is a statistically significant moderator of the relationship between FI and mental distress in U.S. college students ages 18–24.

RQ 2: Does resilience moderate the relationship between HI and mental distress in U.S. college students ages 18–24?

Null Hypothesis 2: Resilience is not a statistically significant moderator of the relationship between HI and mental distress in U.S. college students ages 18–24.

Alternate Hypothesis 2: Resilience is a statistically significant moderator of the relationship between HI and mental distress in U.S. college students ages 18–24.

The RQs, hypotheses, and associated statistical procedures are noted in Table 1.

Table 1

Research Questions and Statistical Procedures

Research Questions	Hypotheses	Variables	Statistical procedure
Quantitative: Does resilience moderate the relationship between FI and mental distress in U.S. college students ages 18-24?	H1: Resilience will significantly moderate the relationship between FI and mental distress in U.S. college students ages 18-24?	Independent: FI (continuous) Dependent: Mental Distress (continuous) Moderator: Resilience (continuous)	Moderated Multiple Linear Regression
Quantitative: Does resilience moderate the relationship between HI and mental distress in U.S. college students ages 18-24?	H2: Resilience will significantly moderate the relationship between HI and mental distress in U.S. college students ages 18-24?	Independent: HI (categorical) Dependent: Mental Distress (continuous) Moderator: Resilience (continuous)	Moderated Moderated Multiple Linear Regression

Threats to Validity

Potential threats to internal and external validity existed in this study. The ACHA-NCHA III survey data is based on student self-report, representing a potential threat to internal validity, as survey responses may be influenced by what students consider socially acceptable answers (Miller, 2011). Unintended factors such as social, political, or historical events occurring at the time of the survey's offering may also have influenced participant responses and therefore represent additional threats to internal validity.

Testing bias also threatens internal validity, as participants were allowed the option of starting the ACHA-NCHA III survey and finishing later, potentially allowing these students to reflect on survey questions unlike those who completed the survey in one sitting. Additionally, the survey was offered in English, possibly influencing survey results from students with varying levels of English proficiency and comprehension. Further, the study's correlational design lessens internal validity, since results do not indicate causality between variables, even if correlations exist (Creswell & Creswell, 2017).

Threats to external validity occur when results are generalized beyond the group surveyed or to similar groups at another time frame (Creswell & Creswell, 2017). Using a large, national sample from colleges that randomly select students may increase generalizability and minimize sample bias but does not fully eliminate this threat. Specifically, the voluntary nature of the survey as well as disproportionate number of female (66.7%) and Caucasian (71.3%) respondents posed threats to validity. Missing information in archived data sets represents another potential threat to generalizability (Pedersen et al., 2017) as well as statistical power, that is, the ability to make accurate conclusions about the study hypothesis (Trzeniewski et al., 2011). Researchers address this threat most easily by deleting missing data cells (Trzeniewski et al., 2011).

Construct validity refers to the ability of an instrument to accurately measure a specific construct and represents another potential threat (Trzesniewski et al., 2011). This concern was minimized in this study due to the ACHA-NCHA III survey's inclusion of rigorously validated scales to measure FI, mental distress, and resilience, and a specific

survey item directly addressing student housing arrangements and HI. Use of these validated scales and direct questions in the survey mitigates a common disadvantage of using secondary data, namely the need to ensure that the archived data, originally collected for other reasons, aligns with the present study's RQs and purpose (Trzesniewski et al., 2011).

Ethical Procedures

The ACHA-NCHA III is a voluntary, confidential survey which minimizes ethical risks to survey participants (ACHA, 2020a). Student email addresses were deleted from the ACHA system following submission of the survey, and data sets issued by the ACHA for outside research bear no identifying participant information. Prior to requesting the data set from the organization, I was granted formal approval from the Walden University Institutional Review Board to rule out ethical dilemmas and was given permission to move forward with the study. I then requested survey data specific to the study's variables only and stored the data set on a password protected laptop for the duration of the study.

Summary

The purpose of this chapter was to describe the research methods used for my quantitative correlational design exploring if resilience moderated the relationship between both FI and HI and mental distress in college students ages 18–24. The chapter included information on research design, rationale, sample population, instrumentation, operationalization of variables, data analysis, threats to validity, and ethical

considerations. In the following chapter, Chapter 4, I presented information on data collected and the study results.

Chapter 4: Results

The purpose of this quantitative study was to examine whether resilience moderated the relationship between both FI and HI and mental distress. The RQs were designed to address this purpose, examining whether resilience moderated FI and HI in U.S. college students 18–24. This chapter reviews data collection, descriptive statistics, data analysis results, and summarizes the study findings.

Data Collection

The data for this research were collected by the ACHA, representing responses from the ACHA-NCHA 2020 Spring survey, version 3. Data collection for this survey began in January of 2020 and ended on March 16th, 2020, the date the U.S quarantine began in response to the COVID-19 pandemic. Response rate to the survey was 14%.

Missing Data

Missing data were analyzed using the Little's Missing Completely at Random test and were found to be significant ($p < .01$) indicating non-randomness (Garson, 2015). However, when the missing values are very sparse, approximately under 5% of a sample, they still may be considered missing at random (IBM, n.d.). In this study, the percentage of missing responses among key variables was well under this value, ranging from 0.5 % to 2.6%.

Examination of Assumptions

There are eight assumptions for performing a multiple linear regression analysis (Laerd Statistics, 2013a), each of which is addressed in this section below.

Assumption #1: There is one continuous dependent variable. This assumption was met as the outcome variable, mental distress, is continuous.

Assumption #2: There are two or more independent variables, either continuous or nominal. This assumption was met, as the study's predictor variables are FI and resilience for RQ 1 and HI and resilience for RQ 2.

Assumption #3: There is independence of observations, which can be evaluated using the Durbin-Watson test. Durbin Watson values between 1.5 and 2.5 indicate no autocorrelation between observations (University of Notre Dame, n.d.). This assumption was met, as the Durbin-Watson statistic for FI was 1.87 and for HI, 1.85.

Assumption #4: There is a linear relationship between the outcome variable and each of the predictor variables. This assumption was met as evidenced by the scatterplots.

Assumption #5: The data show homoscedasticity of residuals (equal error variances). This assumption was evaluated using a scatterplot showing residual versus predicted values and showed no evidence of a pattern. Therefore, this assumption was met.

Assumption #6: The data must not show multicollinearity. This occurs when independent variables are highly correlated with each other as evidenced by a score of 10 or higher for the tolerance value, defined as 1/VIF (UCLA Institute for Digital Research and Education, 2021). Tolerance scores showed no multicollinearity as follows: $VIF_{currrent\ residence} = 1.012$; $VIF_{USDI\ FI\ scale} = 1.018$; $VIF_{CDRISC2}$ scale = 1.011.

Assumption #7: There should be no extreme data points or outliers. This assumption was met as evidenced by running the Cook's Distance statistic, which yielded a score under 1, with a value of 0.0025, denoting no extreme data points.

Assumption #8: Residuals must be approximately normally distributed.

Skewness and kurtosis were analyzed for key variables to examine normality. Skewness denotes the symmetry of the distribution where 0 is normal and between -1 and +1 acceptable (George & Mallery, 2011). Kurtosis, a measure of the distribution in the tails rather than the center, also denotes 0 as normal and values between -3 to +3 as acceptable and -1 to +1 as excellent (George & Mallery, 2011). Each of the key variables showed acceptable levels of skewness and excellent levels of kurtosis. Additionally, the Central Limit Theorem states that as sample size increases, particularly where $N \geq 30$, the distribution of the sample means is approximately normally distributed (LaMorte, 2016; Tabachinick & Fidell, 2007). As shown in Table 2, values for skewness and kurtosis of the study's continuous variables (FI, mental distress, resilience) fell within the recommended range for normal distribution.

Table 2

Results for Skewness and Kurtosis for Continuous Variables

Variable	Skewness	Kurtosis
USDAFI	.823	-.783
Kessler 6	.686	.050
CDRISC2	-.582	.503

Note. USDAFI = U.S. Department of Agriculture Food Security Scale; Kessler 6 = Kessler Scale for Non-Specific Psychological Distress; CDISC2 = Connor-Davidson Resilience Scale.

Descriptive Statistics

Participants in the Spring 2020 survey provided a variety of demographic information including age, gender, sex, relationship status, race, and college enrollment status. The data were filtered to include respondents in the target population age group of 18–24 years old, which decreased the total number of participants from 50,307 to 40,017. Most of the sample were unmarried White females, attending college full time, with an average age just over 20 years old. Descriptive statistics for the overall sample are listed in Table 3.

Table 3

Descriptive Demographics for Full Participant Sample

Characteristic		Frequency	Percent	M (SD)
Age	18	5,451	13.6%	
	19	9,083	22.7%	
	20	8,501	21.2%	
	21	7,863	19.6%	
	22	4,786	12.0%	20.31 (1.62)
	23	2,520	6.3%	
	24	1,813	4.5%	
Gender	Female	26,894	67.2%	
	Male	11,515	28.8%	
	Non-binary	1,528	3.8%	
Race	American Indian/Native Alaskan	842	2.1%	
	Asian/Asian American	6,009	15.0%	
	Black/African American	2,324	5.8%	
	Hispanic/Latino/a/x	4,436	11.1%	
	Middle Eastern/Arab	648	1.6%	
	Native Hawaiian	174	.4%	
	White	28,342	70.8%	
	Biracial/Multiracial	1,785	4.5%	
Enrollment	Full-time	38,022	95.0%	
	Part-time	1,711	4.3%	
	Other	167	.4%	
Parent Ed	Doctoral	5,004	12.5%	
	Master's	9,901	24.7%	
	Bachelor's	12,366	30.9%	
	Associate's/some college	6,509	16.2%	
	High School/GED or less	5,793	14.5%	

Note. Enrollment = College Enrollment Status; Parent Ed = Parent's Level of Education.

The sample population is not representative of the general population of U.S. college students in areas such as gender and race. Though women do outnumber men on college campuses nationwide at over 56% (Marcus, 2017) and comprise 54.9% of undergraduate students and 59.8% of graduate students (U.S. Census Bureau, 2018), women in the survey represent 67.2% of the sample and are, therefore, not representative of the overall U.S. college student population. The survey results also overrepresented White college students at 70.8% compared to national averages of 52%, as well as Asian (15% versus 6% nationally), multiracial (4.5% versus 3.3% nationally), and American Indian/Native Alaskan students (2.1% versus 0.8% nationally), while underrepresenting Black/African American (5.8% versus 15.2% nationally) and Hispanic/Latino/a/x students (11.1% versus 19.8% nationally; American Council on Higher Education, 2021).

Descriptive Information for Predictor Variable: FI

Over half of the total sample reported high food security, scoring 0–1, meaning rarely or never missing meals due to lack of money, having inadequate quantity and quality of food, or physical hunger over the last 30 days (56.6%, $N = 22645$). Almost one quarter of the sample reported low food security, scoring between 2–4, meaning occasionally missing meals due to lack of money, having inadequate quantity and quality of food or physical hunger over the last 30 days (24.1 %, $N = 9658$). Over one sixth of the sample reported very low food security, scoring 5–6, meaning most days missing meals due to lack of money, having inadequate quantity and quality of food, or physical hunger over the last 30 days (17.7 %, $N = 7102$). Missing data for FI = 1. 5%.

Table 4 shows notable demographic information for participants reporting severe FI (score of 5 to 6, $N = 7102$). These students were more likely to be female (73.8%), White (65.9%), enrolled full-time (94.3%), have parents with a bachelor's degree or higher (55.2%), and a GPA of B or higher (87.4%). Compared with the overall sample, the severe FI group was overrepresented by females by 6.6% and non-Whites by 5%.

Table 4

Descriptive Statistics for Severe FI Group

Characteristic	*N*	%
Gender		
Male	1,854	26.1%
Female	5238	73.8%
Race		
Asian/Asian American	894	12.6%
Black/African American	618	8.7%
Hispanic/Latino/a/x	15.0	15%
White	4,680	65.9%
Biracial	386	5.4 %
Enrollment		
Full time	6,696	94.3 %
Part time	351	4.9 %
GPA		
A	3,122	44 %
B	3,077	43.4 %
C or less	800	11.3 %
Parent education		
Doctorate	506	7.1%
Master's	1,394	19.6%
Bachelor's	2,023	28.5%
Associate's/some college	1,566	22.1%
High school/GED or less	1,533	21.6%

Note. Enrollment = College Enrollment Status; GPA = Grade Point Average; Parent Ed = Parent's Level of Education.

Descriptive Information for Predictor Variable: HI

Over 97% of the overall sample reported secure housing arrangements. The small group reporting HI, meaning having temporary housing or being homeless ($N = 80$) were more likely to be female (66.3%), White (63.7%), enrolled full-time (81.3%), have a GPA of B or higher (91.1%), and parents with less than a bachelor's degree (54.4%). Compared to the overall sample, the HI group was overrepresented by males by 5% and non-Whites by 7%. Missing data for the housing survey item = 2.6%. Table 5 presents descriptive information for the 80 students reporting HI.

Table 5

Descriptive Statistics for Participants Reporting HI

Characteristic	N	%
Gender		
Male	27	33.8%
Female	53	66.3%
Race		
Asian/Asian American	10	12.5%
Black/African American	8	10%
Hispanic/Latino/a/x	13	16.3%
White	51	63.7%
Biracial	5	6.3 %
Enrollment		
Full time	65	81.3%
Part time	14	17.8.%
GPA		
A	37	44 %
B	35	44.3 %
C or less	7	8.8% %
Parent education		
Doctorate	3	3.8%
Master's	16	20.3%
Bachelor's	13	16.5%
Associate's/some college	20	25.1%
High school/GED or less	23	29.3%

Note. Enrollment = College Enrollment Status; GPA = Grade Point Average; Parent Ed = Parent's Level of Education.

Descriptive Information for Outcome Variable: Mental Distress

Though the majority of students reported low or no mental distress, all K6 levels were represented in the sample (M = 7.98, SD = 5.127, N = 39639). Over one half of the participants scored 0 to 8, no/low psychological distress, meaning rarely or never feeling nervous, hopeless, restless, sad, or worthless in the past 30 days (58.5%, N = 23427). Over one fifth of the participants scored 9 to 12, moderate psychological distress, meaning feeling nervous, hopeless, sad, or worthless some of the time over the last 30 days (21.9%, N = 8756), and over one sixth of the sample scored 13 to 24, representing serious psychological distress, meaning most or all of the time feeling these distressed states over the last 30 days (18.6%, N = 7456). Missing data for the mental distress survey item = 0.9%. When missing data for the K6 survey item were transformed by the expectation-maximization technique, an imputation strategy which estimates missing values from the observed sample (Acock, 2005), it yielded an additional 0.9% (N = 378) of the sample scoring 8.

Results showed that students reporting severe mental distress (score of 13 to 24, N = 7456) were more likely to be female (78%), enrolled full-time (94.7%), White (67.5%), have a GPA of a B or higher (87.6%), a parent with at least a bachelor's degree (63%), but report low or very low food security (59.3%). Considering the full sample demographics, this group of highly distressed students were overrepresented by females by 10.4% and non-Whites by 3.3%. Table 6 shows results for those students reporting severe mental distress.

Table 6

Descriptive Characteristics for Participants Reporting Severe Mental Distress

Characteristic	*N*	%
Gender		
Male	1,661	22.3%
Female	5,782	77.6%
Race		
Asian/Asian American	1,175	15.8%
Black/African American	509	6.8%
Hispanic/Latino/a/x	948	12.7%
White	5,034	67.5%
Biracial	415	5.6 %
Enrollment		
Full time	7,040	94.7%
Part time	351	4.7%
GPA		
A	1,513	47.3 %
B	3,000	40.3 %
C or less	802	10.9% %
Parent education		
Doctorate	831	3.8%
Master's	1,651	20.3%
Bachelor's	2,182	16.5%
Associate's/some college	1,371	25.1%
High school/GED or less	1,319	17.7%
Food security level		
High/Marginal	2,969	40.7%
Low	1,952	26.7%
Very low	2,378	32.6%

Note. Enrollment = College Enrollment Status; GPA = Grade Point Average; Parent Ed = Parent's Level of Education; Food Security Level = based on USDAFI Survey Score

Descriptive Information for Moderator Variable: Resilience

Student level of resilience was determined by scores on the CD-RISC2 scale between 0 to 8, with higher scores indicating greater resilience. Though the majority of students reported high levels of resilience, all levels were represented in the sample (M = 5.99, SD = 1.481, N = 39800). Over two thirds scored 6 to 8, showing high resilience, meaning over the prior month feeling they were often or always able to adapt when changes occurred and bounce back after hardships (68%, N = 27157). Almost one third scored between 3 to 5, moderate resilience, meaning over the prior month they were sometimes able to adapt and bounce back (30%, N = 11, 930), while a small number scored between 0 to 2, low resilience, meaning rarely or never able to adapt or bounce back (4.5%, N = 713). Missing data for the resilience survey item = 0.5%. When the missing data were transformed by the expectation-maximization technique, an additional 0.5% (N = 217) of the sample was added to the score of 6.

Students showing the greatest challenge with resilience (scores of 0 to 1, N = 251) were more likely to be female (57%), White (53.8%), enrolled full-time (88.8%), have educated parents (54.6% bachelor's or higher, with 33% master's or doctorate), high GPAs (85.2% B or higher), low or very low food security (63.1%), and report serious psychological distress (68.8%). Compared with the overall sample, the low resilience group was overrepresented by males by 12.2 % as well as Asian/Asian Americans students by 14.5%. Descriptive information for the low resilience group is shown in Table 7.

Table 7

Descriptive Characteristics for Participants Reporting Low Resilience

Characteristic	*N*	%
Gender		
Male	103	41%
Female	143	57%
Race		
Asian/Asian American	74	29.5%
Black/African American	16	6.4%
Hispanic/Latino/a/x	20	8%
White	135	53.8%
Biracial	13	5.2%
Enrollment		
Full time	222	88.8%
Part time	27	10.8%
GPA		
A	48	49.2 %
B	90	36 %
C or less	29	14.8% %
Parent education		
Doctorate	30	12%
Master's	53	21.1%
Bachelor's	54	21.5%
Associate's/some college	48	19.2%
High school/GED or less	56	22.3%
Food security level		
High/Marginal	88	37%
Low	73	30.7%
Very low	77	32.4%
Mental distress		
No/Low	41	16.6%
Moderate	36	14.3%
Serious	170	68.8%

Note. Enrollment = College Enrollment Status; GPA = Grade Point Average; Parent Ed = Parent's Level of Education; Food Security Level = USDAFI Survey Item Score; Mental Distress = Kessler 6 Scale for Non-Specific Psychological Distress Score.

Students reporting the highest resilience (scoring between 6 to 8, $N = 27157$) were more likely to be female (67.8%) and White (72.7%). Compared with the overall sample, the high resilience group was overrepresented by males by 3.3% and Whites by 1.9%, underrepresented by Asian Americans by 1.7%, and nearly mirrored the larger sample for Black/African American, Hispanic, and biracial/multiracial students. Results for high resilience students by gender and race are shown in Table 8.

Table 8

High Resilience Group Statistics by Gender and Race

Characteristic	*N*	%
Gender		
Male	8,726	32.1%
Female	18,416	67.8%
Race		
Asian/Asian American	3,611	13.3%
Black/African American	1,552	5.7%
Hispanic/Latino/a/x	3,004	11.1%
White	19,752	72.7%
Biracial/Multiracial	1,208	4.4%

Correlation Analyses

A correlation matrix of the key variables in the data set yielded two notable results. Unsurprisingly, mental distress was positively correlated with FI ($r = .27$, $p < .001$) with a medium effect size due to the r value being close to 0.3 (Cohen, 1988). Conversely, mental distress was negatively correlated with resilience ($r = -.41$, $p < 001$) with a moderately large effect size due to the r value being between 0.3 (medium) and 0.5 (large) (Cohen, 1988). All other correlations between key variables showed Pearson r

coefficients below .2 and are therefore considered weak or non-existent (Laerd Statistics, 2013b).

Tests of Hypotheses

Research Question 1

RQ#1: Does resilience moderate the relationship between FI and mental distress in U.S college students ages 18–24? Research question 1 was answered by performing a moderation analysis using Andrew F. Hayes' PROCESS macro version 3.5, Model 1, using the full participant sample. The overall regression model explained a significant and moderately large proportion of the variability in mental distress (R^2 = .23, F(3, 38871) = 3764.47, p < .001) due to the R^2 value being between 0.13 (medium effect) and 0.26 (large effect) (Cohen, 1988). The analysis showed FI as a significant and positive predictor of mental distress (β = .55, p < .01) and resilience as a significant and inverse predictor of mental distress (β = -1.36, p < .01). In other words, as the level of FI increased, level of mental distress also increased, but as resilience increased, mental distress decreased. However, the moderation analysis showed that resilience does not significantly moderate the relationship between FI and mental distress (β = .0015, p = .83), and therefore, the null hypothesis for RQ#1 was not rejected.

Research Question 2

RQ#2: Does resilience moderate the relationship between the presence of HI and mental distress in U.S. college students ages 18–24? Research question 2 was answered by performing a moderation analysis also using Hayes' PROCESS macro, version 3.5, Model 1. Students with HI represented only 0.2% of the sample, potentially limiting the

power of the HI analysis. Due to this small number of participants reporting HI and the unequal groupings for this variable, I created a comparison group for the purpose of the moderation analysis by randomly selecting 80 non-HI subjects. This comparison group was not statistically significantly different than the HI group in age, gender, or race ($p \geq .05$). Table 9 shows descriptive information for this subsample.

Table 9

Descriptive Demographics for Analysis of Research Question 2

Characteristic		HI Group			Non-HI Group		
		N	%	*M*	*N*	%	*M*
Age	18	9	11.3%		5	6.3%	
	19	8	10.0%		12	15.0%	
	20	9	11.3%		18	22.5%	
	21	22	27.5%	21.1	14	17.5%	21.0
	22	16	20.0%		17	21.3%	
	23	8	10.0%		3	3.8%	
	24	8	10.0%		11	13.8%	
Gender	Female	53	66.3%		62	77.5%	
	Male	27	33.8%		18	22.5%	
Race	American Indian/Native Alaskan	2	2.5%		1	1.3%	
	Asian/Asian American	10	12.5%		9	11.3%	
	Black/African American	8	10.0%		7	8.8%	
	Hispanic/Latino	13	16.3%		8	10.0%	
	Middle Eastern/North African/Arab	2	2.6%		0	0%	
	Native Hawaiian/Pacific Islander	0	0%		0	0%	
	White	51	63.7%		60	75%	
	Bi/Multiracial	5	6.3%		3	3.8%	

Note. This subsample was matched only by characteristics of age, gender, and race.

For RQ#2, the overall moderation model explained a significant and moderate proportion of the variance in mental distress (R^2 = .17, F(3,155) = 10.81, p < .01), due to the R^2 value being just over the medium effect size value of .13 (Cohen, 1988). Though HI was not found to be significant in predicting mental distress (β = 2.03, p = .57), resilience was found to be significant and inversely related to mental distress (β = -1.18, p = .01). In other words, as resilience increased, mental distress decreased. However, the moderation analysis showed that resilience does not significantly moderate the relationship between HI and mental distress (β = .09, p = .88), and therefore, the null hypothesis for RQ#2 was not rejected.

Summary

This chapter described the study findings where I tested the hypotheses that resilience was a statistically significant moderator of the relationship between FI and mental distress (RQ1) and HI and mental distress (RQ2). The study results did not support either hypothesis. The moderation analyses were not significant and therefore the null hypotheses were not rejected. However, other relationships among key variables were discovered, notably that resilience was significant and inversely predictive of mental distress among both food and housing insecure participants. Chapter 5 summarizes the study findings, potential applications in support of social change, and future research recommendations.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this study was to expand the understanding of resilience, mental distress, and basic needs insecurity in U.S. college students ages 18 to 24. Specifically, I explored whether resilience moderated the relationships between FI and mental distress, and HI and mental distress in this population. The study findings did not support the hypotheses of resilience as a statistically significant moderator of either relationship; therefore, I was unable to reject the null hypotheses. However, other useful information was gleaned from the study results such as the inverse relationship between resilience and mental distress (as resilience increased, mental distress decreased) as well as the positive relationship between FI and mental distress (as FI increased, mental distress increased). This chapter includes an interpretation and discussion of the study findings, limitations, applications to social change, recommendations for future research, and conclusions of the research.

Description of Sample

The ACHA provided the data set for this study, the results of the Spring 2020 NCHA survey. The organization stopped collecting survey data from colleges on March 16, 2020, due to the COVIID-19 pandemic quarantine that began in the United States on that date. The survey was voluntary and had a low response rate (14%). Study participants were college students between the ages of 18 to 24, $N = 40{,}017$, most of whom were unmarried White females, attending a 4-year college full time, with educated parents and an average age just over 20 years old. Results showed that most students were food and housing secure (56.6% and 97.2% respectively), had no or low levels of

psychological distress (58.5%), and high levels of resilience (68%). On average, males reported higher resilience scores and were overrepresented in the HI group, and females reported higher mental distress scores and were overrepresented in the FI group.

It is notable that these young adults in the 18–24-year-old range are the first adult group of their generation, often called Generation Z or iGen, having birth years of 1996 or later (Twenge, 2017). Generation Z represents the first group of digital native adults, meaning those individuals born into a highly technological world who typically have little or no memory of life before the internet and iPhones (Parker & Igielnik, 2020). Generational researchers have identified a significant uptick in psychological distress starting in Gen Z adolescents around 2010 which coincided with the explosion of smartphone ownership, hence their nickname iGen (Twenge, Joiner, et al., 2018). Ongoing studies have found an increase in mental health problems when personal interactions were dominated by the virtual or social media, versus in-person, contact, common to this age group (Hasmawati et al., 2020; Twengeet al., 2018). Specifically, the pervasive checking for peer feedback characteristic of social media interactions was cited as a source of chronic worry, hypervigilance, and potentially exaggerated perception of social rejection and isolation in the user, even resulting in panic at the prospect of separation from one's smartphone, a phenomenon known as nomophobia (Hasmawati et al., 2020). Further, Generation Z young adults report growing concerns and fears about the world around them regarding mass shootings, police violence, immigration problems, and climate issues, leading this group to report less hope for the future when compared to all other age groups (American Psychological Association, 2020). The documented

mental health struggles and unique features of this population prompted my interest in the current study. The next sections will discuss the study findings for each key variable.

Interpretations of the Findings

Mental Distress

The participant level of mental distress was evaluated with the K6 scale for measuring non-specific psychological distress over the prior month. Though most of students surveyed reported low or no mental distress (58.5%), 21.9% reported moderate and 18.6% reported serious psychological distress over the prior month totaling a noteworthy 40.5%, or 16,212 out of 39,639 students who endorsed feeling nervous, hopeless, sad, or worthless some or most days over the prior month. Notably, students in the severely distressed group were overrepresented by females by 11% and non-Whites by 3.3 %.

These findings are consistent with the prior research on mental distress in young adult college students, where studies found a substantial and increasing number of students reporting anxiety, depression, and other markers of serious psychological distress (Duffy et al., 2019; Liu et al., 2019), particularly females (Duffy et al., 2019). It is possible that the prevalence of mental distress reported in the study was influenced by the generational factors noted in the previous section as well as Generation Z's greater acceptance of mental illness and increased comfort and willingness to report their own distress compared to other generations (Twenge, 2017).

Further, this population's characteristic immersion in technology and social media also may have influenced the high prevalence of distress reported. For example, repeated

exposure to social media and online sites that glamorize mental illness and even promote self-injurious responses to anxiety and depression (such as cutting and suicide) may have resulted in increased normalization and reporting of mental distress (Marchant et al., 2017) in the study sample. However, young adults also increasingly utilize social media and the internet to express distress and seek help (Marchant et al., 2017) highlighting the challenges and opportunities facing university and mental health personnel as they seek to support these at-risk students.

Resilience

Student level of resilience was evaluated with the 2-item CDRISC2 resilience scale which yielded scores between 0–8, where higher scores represented greater resilience. Though most students (68%) scored in the upper range between 6 to 8, meaning often or always able to adapt and bounce back when change or hardship occurs, the overall results were varied. The high resilience group was overrepresented by male (by 3.9%) and White (by 1.9%) students, whereas the lowest resilience group, scoring 0–1, were significantly overrepresented by males (by 12.2%) and Asian American students (by 14.5%). Though the high resilience group findings are consistent with some studies showing the greater resilience of males at college (Erdogan et al., 2015) and in the general population (Pulido-Martos et al., 2020), other college studies have reported mixed results for resilience by gender (Allan et al., 2014). The reason for the increased prevalence of Asian students in the low category was unclear, but it is possible that cultural factors influenced results, such as valuing humility and a tendency to judge themselves more harshly than other groups (Gee et al., 2020).

The correlational analysis showed that resilience was inversely correlated with mental distress, in other words, as resilience increased, mental distress decreased. This outcome was consistent with prior resilience research that found resilience associated with improved mental health status in adults (Dyer & McGuinness, 1996) and in college students, in particular (DeRosier et al., 2013; University of Pennsylvania, 2020). Conversely, the large percentage of study participants reporting high resilience (68%) was inconsistent with recent population research, which found only 22% of young adults showing high resilience levels (Cigna, 2020). It is possible that this difference was due to the use of different resilience scales, as previous research such as the Cigna (2020) survey utilized the more comprehensive 17-item Adult Resilience Measure (Resilience Research Centre, 2018) which may have captured student resilience challenges undetected by the 2-item CDRISC scale.

Additionally, it is possible that perceptions of resilience are shifting in younger adults. Definitions of resilience have been refined over time and generally include key competencies such as problem-solving, hope and optimism, a view of obstacles as surmountable, and ability to mobilize social support (Masten, 2018). In contrast, Generation Z individuals are more likely defer problem-solving to parents (Twenge, 2017) and the government (Parker & Igielnik, 2020), report fears about the future versus optimism (American Psychological Association, 2019; Twenge, 2017), see problems as being out of their control, and report social isolation versus support (Twenge, 2017). Yet most of the study sample reported high resilience, inviting the possibility that young adult views of resilience may be shifting, such as toward a more collective versus individual

focus. Research showing this population's concern for social justice and global climate solutions lends support to this possibility (Parker & Igielnik, 2020).

Alternatively, it is possible that young adult college students do not recognize their own vulnerability and thereby overestimated their level of resilience. Research has shown that recent trends toward overprotective, indulgent parenting styles has shielded children from consequences and responsibility and resulted in overly insulated, emotionally fragile adults unprepared for the rigors of life (Cui et al., 2019; Lukianoff & Haidt, 2019). If true for the study sample, it is possible that respondents' lack of experience with overcoming hardships led to an overestimation of their resilience levels. Moreover, if these high levels of reported resilience were accurate, one would expect simultaneous low levels of mental distress in the sample, which was not the case.

FI

The first predictor variable, FI, is known to be associated with mental distress (Payne-Sturges et al., 2018) and is an increasing concern on U.S. college campuses (Goldrick-Rab et al., 2017). The level of student FI was evaluated based on the embedded 6-item USDA ERS Food Security scale, where lower scores indicated greater food security. The scale addressed the ability to afford food that the respondent would ideally choose to purchase versus focusing on caloric intake or specific food choices (USDA ERS, 2020b). Despite most respondents scoring in the 0 to 1 range (indicating high food security), 24.1% reported low food security and 17.7% reported very low food security over the prior 30 days, totaling 16,760 out of 39,405 students in the FI category. These data suggest that nearly 42% of the total student sample experienced some level of FI.

Notably, over half the students in the severe FI group had college-educated parents (55.2%), despite higher education traditionally being associated with increased financial security (College Board Communications Office, 2017). Approximately half of the FI group reported moderate to serious psychological distress, 10 percentage points higher than that of the overall sample, with 25% in the severely distressed category. The vast majority of FI students were housing secure, with only 0.3% reporting HI.

These results were consistent with prior research finding FI to be common on college campuses (Goldrick-Rab et al., 2017), particularly since the 2008 Great Recession, possibly due to rising tuition costs and economic strain stemming from that crisis (Nazmi et al., 2019). However, when considering the focus of the FI questions, it is also possible that students have other reasons for not affording the food they would ideally choose to purchase. For example, research shows that college students commonly buy non-essential items over food such as iPhones (O'Donnell & Epstein, 2019) and recreational drugs, particularly marijuana since its legalization in many states (Alley et al., 2020). Additional research may be needed to determine exactly what FI means for college students, and if there are reasons other than poverty contributing to the inability to purchase food.

Additionally, the study's correlational analysis results showed that FI was positively associated with mental distress in this sample, suggesting FI as a potential stressor that is associated with negative psychological states. This finding is consistent with prior research conducted on FI and mental distress, which found FI associated with higher levels of depression, anxiety, and sleep disorders than food secure adults (Arenas

et al., 2019; Martin et al., 2016) as well as associated with stress, depression, and physical health problems in college students in particular (Payne-Sturges et al., 2018).

The study results also supported previous research that showed that individuals with FI in the United States were more likely to be female and non-White (Nazmi et al., 2019). For the college student FI population, it is possible that these trends are due to women and minority groups historically operating at a financial disadvantage and viewing education as source of hope and future advancement, regardless of the sacrifice involved. The study findings underscore the importance of increasing FI awareness on college campuses, particularly among women and ethnic minority students, due to the increased risk of adverse mental and physical health consequences known to affect FI individuals (Nazmi et al., 2019).

HI

The second predictor variable, HI, was evaluated based on a survey item inquiring about current student residence. I designated the responses of "temporary housing/couch surfing" and "no residence/homeless" as indicating HI, due to these responses aligning with generally accepted definitions of HI noting the lack of a fixed, adequate nighttime residence (Silva et al., 2017). The results showed that an overwhelming majority of students reported housing security (97.2%), with only 80 students reporting HI. Though HI students were more likely to be White females, males were overrepresented in this group by 5.2% and non-Whites by 5%. Additionally, of the HI group, 58.8% reported serious psychological distress and 80.3% reported FI, consistent with research showing

the chronic stress and unmet needs that typically accompany HI (U.S. Department of Health and Human Services, 2020).

This study's small percentage of HI students is inconsistent with recent research on HI in college students that found over 50% of students reporting HI including 13% reporting homelessness (Goldrick-Rab et al., 2017). This difference may be due in part to prior research focusing on U.S. community colleges that typically serve less affluent students (Goldrick-Rab et al., 201) than this study's sample, which included mostly 4-year post-secondary institutions (71 out of 75 colleges). Additionally, it is possible that feelings of shame led HI students to hide or misrepresent their true housing status, contributing to the low number of students reporting HI in the sample (Hallett & Freas, 2018), particularly if they perceived student peers as financially stable or wealthy, which may be less of a factor at community colleges. Further, it is possible that many HI students did not respond to the survey due to being preoccupied with more pressing needs, leaving less time and energy for non-essential college tasks. However, the study findings were consistent with recent research showing the association between HI and mental distress (Hallett & Freas, 2018; Narendorf et al., 2018; Padgett, 2020) and the prevalence of HI and FI together (Goldrick-Rab et al., 2017). These findings highlight the importance of addressing this at-risk student group to avoid the potentially adverse mental and physical health conditions known to accompany HI.

Tests of Hypotheses

The moderated regression analysis did not support either of my study's hypotheses. A moderator is a variable that influences the direction or strength of the

relationship between a predictor and an outcome variable (Barron & Kenny, 1986). In this study, the moderating variable (resilience) was not found to significantly affect the relationship between the either predictor variable (FI, HI) and the outcome variable (mental distress). There may be several reasons for this result.

First, this may be due to FI and HI students reporting high resilience. Over 64% of FI students were in the top third of resilience scores, and 71.4% of HI students scored in the upper half, with 23.8% of HI students reporting the highest resilience level possible (score of 8). Therefore, resilience may have had less of an impact on mental distress levels in FI and HI students than I had hypothesized.

Second, to my knowledge, this study's particular combination of variables and psychometric tools have not been used together in prior research. Therefore, my hypothesis was generated from previous research that used a similar, but not identical, combination of variables and scales, as well as non-identical population samples, which may have influenced the formulation of my hypotheses. For example, several of the studies I cited for comparison were conducted in the years just prior to Generation Z's emergence into college, and therefore, were based on participant samples from the Millennial generation (DeRosier et al., 2013; Hartley, 2012; Johnson et al., 2015). For this reason, it is possible that traits specific to Generation Z were not captured in these studies, such as the higher reports of anxiety (Duffy et al., 2019).

Additionally, several comparison studies used assessment tools to evaluate resilience and perceived distress that were different from those of the present research (Ainscough et al., 2018; Pidgeon et al., 2014), potentially generating less comparable

results. Still other studies contrasted with my research by using a qualitative versus quantitative design (Bry, 2018), smaller sample sizes ($N < 100$) (Gerson & Fernandez, 2013; Narendorf et al., 2018), highly specific populations such as transgender or spinal cord injury participants (Bry, 2018; Catalano et al., 2011), non-American student samples (Ainscough et al., 2018; Turner et al., 2017), or participants already voluntarily engaged in a college resilience program (University of Pennsylvania, 2020).

Third, it is possible that the survey's use of the shortened CD-RISC2 scale to measure resilience impacted the study results. In contrast to the ACHA-NCHA III survey, the comparison research utilized either the 10-item or 25-item versions of the Connor-Davidson Resilience scales (Gerson & Fernandez, 2013; Hartley, 2012; Turner, 2017). It is possible that the abbreviated nature of the 2-item CD-RISC2 did not reflect the full picture of participant resilience levels that would have been captured by the longer scales. For example, the 2-item version condenses the full scale into core questions measuring the ability to (1) adapt to change and (2) bounce back after a hardship (Vaishnavi et al., 2007). However, the full scale includes items about specific resilience competencies, such as taking responsibility to solve problems, having control over one's life, seeing challenges as opportunities for growth, handling stress and uncomfortable feelings, and maintaining an optimistic outlook (Connor & Davidson, 2003), none of which are considered characteristic of Generation Z adults (Twenge, 2017). Therefore, participants in my study may have reported higher resilience levels with the 2-item scale than if responding to the full CDRISC survey, potentially impacting the moderation analysis results in unexpected ways.

Theoretical Frameworks

These findings align with some, but not all, features of the study's two theoretical frameworks, Maslow's hierarchy of needs theory and resilience theory. For example, the small HI sample size was consistent with Maslow's theory, as individuals preoccupied with securing basic physiological needs may be less motivated to complete optional college tasks (such as the ACHA survey) in the face of more pressing stressors and limited time remaining after work and study. However, other results did not align with this theory. For example, Maslow (1943) theorized that motivation toward higher order goals (such as educational pursuits) was not present until lower-level needs (such as food and shelter) were met. This study showed that a significant percentage of students experienced FI and mental distress, yet most were enrolled full-time in college and had high GPAs. Similarly, the HI group was more likely to be enrolled full-time and maintain a B average or higher. It is possible, however, that this finding was consistent with Maslow's later view of the needs hierarchy which allowed for overlapping stages (Maslow, 1987). Additionally, student financial aid and other modern safety nets allow for the achievement of higher goals in the presence of unmet basic needs, an option that was unavailable in Maslow's day and may also have accounted for these discrepancies.

The study results are also mixed regarding resilience theory. For example, the results of the regression analysis did not align with the theory or my hypothesis that resilience would moderate mental distress for students experiencing FI and HI. There may be several reasons for this outcome. For example, there may have been generational influences at work, where this student group, the first young adult group of its generation,

possessed unique traits not seen in the prior generations upon which resilience theory and its psychometric tools were based (roughly 1940's through 2000's), leading to unexpected results. Specifically, the participant responses may have reflected shifting views of resilience, such as an increased focus on collective strength versus the individual competencies that have typically defined resilience (Masten, 2018).

In contrast to the moderation results, the overall regression model showed an inverse correlational relationship between resilience and mental distress, consistent with the theory's notion that resilience offsets mental distress (Dyer & McGuinness, 1996; Masten, 2018; Rutter, 1987). These findings demonstrate that as resilience level increased, mental distress level decreased, in the overall sample. Therefore, these results lend support to the value of resilience interventions and programs for college students, consistent with the findings and recommendations from prior studies (DeRosier et al., 2013; Narendorf et al., 2018; University of Pennsylvania, 2020).

Limitations of the Study

This research is subject to several limitations. Primary limitations include the survey's voluntary nature, overall low response rate, and overrepresentation of White females, limiting the generalizability of results beyond these groups. Additionally, the survey was presented only in English, though there were respondents from a variety of cultural and ethnic backgrounds who may have had varying levels of English proficiency. Also, the survey results were self-reported, allowing for participant biases such as selecting responses based on social acceptability over accuracy (Miller, 2011).

Additionally, limitations to construct validity may have been present, where the survey instrument failed to accurately measure key variables. The survey included embedded short forms of three validated scales (USDAERS, K6, and CD-RISC2) versus the original full scales, the latter of which may have yielded a more accurate representation of the key variables. Further, the quantitative survey method itself, though convenient, may have represented a limitation due to not fully capturing the nuanced results that emerge from qualitative research. Specifically, a qualitative approach may have uncovered additional aspects of the mental distress and FI reported by these students, many of whom appeared outwardly stable (i.e., high GPAs, from educated families, high reported resilience levels).

Additionally, unintended social, political, or historical factors may have influenced participant responses or decisions to participate in the survey. For example, though the ACHA stopped the Spring 2020 survey data collection on the day of the U.S. quarantine, the effects of COVID-19 leading up to this date may have been a factor, primarily in areas of the country where the virus had already taken a toll. Also, socio-political issues may have influenced results such as the heightened awareness and protests over racial inequality (Mazumder, 2019) and changes to immigration policy (Aranda et al., 2020) which occurred before and during the time of the survey's offering. For example, the reversal of the Deferred Action for Childhood Arrivals (DACA) program in 2017 may have altered the decisions of undocumented students to participate in an official college survey, or enroll in college at all, due to fear of deportation (Aranda et al., 2020), thereby potentially eliminating a group from the study known for resilience

in the face of challenges (Cadenas et al., 2018; Negrón-Gonzales, 2017). Together, these historical factors may have been particularly impactful for Generation Z adults who represent the most racially and ethnically diverse generation in United States history (Parker & Igielnik, 2020).

Recommendations for Research

My first recommendation for future research would be to offer a comprehensive survey to a more representative group of students regarding gender and race, as well as offering it in a variety of languages representative of the participant sample. Additionally, I recommend similar research using the 10-item or 25-item Connor-Davidson resilience scale to capture student resilience levels more accurately. Further, I recommend similar research exploring this study's variables in 2021 and beyond due to the rapidly changing economic climate stemming from the COVID-19 pandemic which has resulted in half of college age young adults reporting an income loss in the family (Parker & Igielnik, 2020). These students are not only at greater risk of FI and HI, but they have also been disproportionally affected by the emotional toll of the pandemic, reporting the highest level of stress and loneliness of all generations by the fall of 2020, despite being the most socially connected (American Psychological Association, 2020).

Overall, the pandemic appears to have exacerbated the existing challenges of this student population which was already vulnerable to emotional instability. Therefore, I would recommend future qualitative research to explore the nature of the mental distress that is increasingly reported by this population (Duffy et al., 2019), now worsened by the pandemic conditions (Son et al., 2020). Additionally, I recommend qualitative research

exploring how this population views and defines the study's other key variables due to the unexpected and even paradoxical results of the study. It is possible that new paradigms are required for understanding distress and resilience in this unique group of young adults as they navigate a post-pandemic, highly complex world.

Recommendations for Practice

Though research shows the challenges stemming from this generation's immersion in technology (Duffy et al., 2019; Hasmawati et al., 2020), online media resources are being increasingly leveraged to aid Generation Z adults. Virtual mental health resources capable of reaching students all over the globe have exploded in number, particularly in response to the COVID-19 pandemic's emotional toll (Son et al., 2020). Recent research suggests that universities can do more to increase awareness of available mental health resources and target heightened student concerns such as loneliness, frustration, depression, financial strain, and family conflict (Son et al., 2020).

Additionally, university administrators and counselors may need to shift from outdated mental health paradigms as new information emerges about novel and effective treatment options. For example, internet-based self-help apps, peer-to-peer support, and student-led forums have become increasingly popular during the pandemic and warrant continued consideration and use (Salimi et al., 2021). Also, many states have earmarked funds from the Coronavirus Aid, Relief and Economic Security (CARES) Act for colleges to expand their telemental health and crisis services that link distressed students with professional counselors (Salimi et al., 2021). Ideally, these programs will continue and expand, long after the pandemic has abated.

Implications for Social Change

The results of this study may contribute to positive social change in a number of ways. First, though my hypotheses were not supported, the results may help to shed light on the scope of the college student population endorsing FI and mental distress, conditions disproportionally affecting women and ethnic minorities (Nazmi et al., 2019). Though the group reporting HI was quite small, the study findings may still contribute to the conversation about basic needs insecurity in the college population, a group traditionally considered a more stable and economically advantaged subset of the young adult population (Duffy et al., 2019). Further, the unequal representation of ethnic backgrounds in a college student sample of this magnitude shows the importance of implementing changes to ensure equal participation from minority populations who, historically, have been unrepresented in survey research (UyBico et al., 2007).

Additionally, the study results showing the prevalence of mental distress, as well as the inverse relationship between resilience and mental distress, may add support to prior research recommending the inclusion of college resilience programs and resilience-based interventions for college students (DeRosier et al., 2013). However, Generation Z's unique experiences and viewpoints may require novel approaches to resilience and mental health interventions, such as incorporating internet-based apps, virtual crisis lines, and peer-led support (Salimi et al., 2021. The study findings may also benefit university administrators who identify severe student mental health needs as a primary concern and top priority at their institutions (Lipson et al., 2019). Finally, the study results show the need for additional financial support for college students (food, housing, tuition) who not

only have incurred skyrocketing tuitions costs over the last decade, but now bear additional economic strain stemming from the COVID-19 pandemic (Parker & Igielnik, 2020). Though many colleges have already started to address these needs (Mialki et al., 2021; Salimi et al., 2021) it is important for these pandemic support programs to continue and perhaps expand due to the pandemic's ongoing financial and emotional consequences.

Conclusion

Using the ACHA NCAH 2020 Spring survey and the theoretical frameworks of Maslow's hierarchy of needs theory and resilience theory, I examined whether resilience moderated the relationship between FI and mental distress, and HI and mental distress, in U.S. college students ages 18 to 24. The study findings did not support my hypotheses, though potentially valuable information emerged from the study, such as the magnitude of mental distress and FI in this population, as well as the inverse relationship between resilience and mental distress suggested in prior research (DeRosier et al., 2013). With over 20 million U.S. college students representing approximately 40% of Americans between the ages of 18 to 24 years old, addressing the mental health challenges and basic needs of this population is a pressing, and growing, concern. The significant rise in mental health problems in college students should serve as an alarm, as these young adults are at risk for numerous, adverse, downstream emotional, financial, educational, and health consequences (Duffy et al., 2019).

Moreover, current events taking place during the time of this writing, such as the worldwide COVID-19 pandemic, highlight our global interdependence and need for

creative future solutions. As the most ethnically diverse and technologically savvy adult group in U.S. history, with strong values for justice and equality, Generation Z college students may possess the unique skills and vision needed to tackle such global challenges as our next leaders, teachers, parents, and elected officials. Therefore, addressing this group's current emotional and financial struggles, in support of their well-being and success, not only serves this student population but ultimately the larger society.

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Appendix: NCHA Survey Questions Pertaining to Study Variables

NCHA Questions Pertaining to FI: USDA ERS Food Insecurity 6-Item Short Form (Item N3Q12, A-E)

For the following statements, please say whether the statement was often true, sometimes true, or never true for you in the last 30 days.

Often True (2)

Sometimes True (1)

Never True (0)

•The food that I bought just didn't last, and I didn't have money to get more. (N3Q12A)

- I couldn't afford to eat balanced meals. (N3Q12B)

In the last 30 days, did you ever cut the size of your meals or skip meals because there wasn't enough money for food? (N3Q12C)

- Yes, almost every day (3)
- Yes, some days, but not every day (2)
- Only 1 or 2 days (1)
- No (0)

N3Q12D In the last 30 days, did you ever eat less than you felt you should because there wasn't enough money for food?

- Yes (1)
- No (0)

N3Q12E In the last 30 days, were you ever hungry but didn't eat because there wasn't enough money for food?

- Yes (1)
- No (0)

NCHA Questions Pertaining to Housing (item N3Q78)

- Where do you currently live?
- Campus or university housing (1)
- Parent/guardian/other family member's home (2)
- Off-campus or other non-university housing (3)
- Temporarily staying with a relative, friend, or "couch surfing" until I find housing (4)
- I don't currently have a place to live (5)
- Other (please specify) (6)____

NCHA Questions Pertaining to Mental Distress: Kessler 6 Screening (N3Q44)

N3Q44 The next 6 questions ask about how you have been feeling during the past 30 days. For each question, please select the response that best describes how often you had this feeling.

All of the time (4)

Most of the time (3)

Some of the time (2)

A little of the time (1)

None of the time (0)

During the past 30 days, about how often did you feel...

- ...nervous? (N3Q44A)
- ...hopeless? (N3Q44B)
- ...restless or fidgety? (N3Q44C)
- ...so sad nothing could cheer you up? (N3Q44D)
- ...that everything was an effort? (N3Q44E)
- ...worthless? (N3Q44F)

NCHA Questions Pertaining to Resilience: CD-RISC 2 (N3Q42)

Please indicate how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer according to how you think you would have felt.

Not at all true (0)

Rarely true (1)

Sometimes true (2)

Often true (3)

True nearly all the time (4)

- I am able to adapt when changes occur. (N3Q42A)
- I tend to bounce back after illness, injury, or other hardships. (N3Q42B)