Basic Needs Fulfillment and Course Completion Rates for Online University Students with Disabilities: A Quantitative, Non-Experimental, Causal-Comparative Study

By

Ashleigh King

A Quantitative Dissertation Presented in Partial

Fulfillment of the Requirements for the Degree

Doctor of Philosophy

Liberty University

2024

Basic Needs Fulfillment and Course Completion Rates for Online University Students with Disabilities: A Quantitative, Non-Experimental, Causal-Comparative Study

By

Ashleigh King

A Quantitative Dissertation Presented in Partial

Fulfillment of the Requirements for the Degree

Doctor of Philosophy

Liberty University

2024

Approved By:

Jason Cheek, Ed.D., Committee Chair

Angela Ford, Ed.D., Committee Member

ABSTRACT

The purpose of this quantitative, nonexperimental causal-comparative study is to determine if there is a difference in the percentage of courses completed between online university students with disabilities who are experiencing food and/or housing insecurity and those who are not. Students with disabilities at universities are less likely to complete courses than peers without disabilities, and while this discrepancy is often blamed on disability, other factors that impact student performance must be examined to determine if intersecting factors that disproportionately impact people with disabilities, specifically food and housing insecurity, may be contributing to decreased percentages of course completion. The theory guiding this study is Maslow's Hierarchy of Needs, as it emphasizes the importance of basic psychological needs, such as food and housing, being met in order for people to reach their fullest potential. Research was conducted using the U.S. Household Food Security Survey Module: Six-Item Short Form and the Fragile Families and Childhood Wellbeing 6 Item Housing Questionnaire. Online students at a large university in the Southwest United States of America in a Teachers' College were surveyed. A random sample of 126 students was used for analysis, taken from 3,031 students surveyed. Data was analyzed using a two-way ANOVA to determine the findings. There were no statistically significant differences in course completion rates between students who were food and housing secure and those who were not. Further research is recommended to understand the impact of food and housing insecurity in both acute and chronic situations for online university students with disabilities.

Keywords: online education, higher education, food insecurity, housing insecurity, course

Copyright Page

Dedication

To Jesus Christ for always lighting my path, and allowing me an opportunity to serve others through my learning and work!

To my most important person, my inspiration, and the joy of my life, my son, Noah King. Your kindness, resilience, and passion for all you do lights up each day! I love you always!

To my Mom, Candy Clark, for instilling in me a value for education and a heart for service, your constant support, and the many late night phone calls that enabled me to continue on my journey! To my Sister, Jennifer Haines, for both your love and logic that helps me see clearly! To my Stepdad Bob, who is a fountain of calm amidst all of our chaos, and wisdom in challenges!

To my Arizona family: The Wests, Chitwoods, Sims, Johnsons, Barros, Roriguezes, Esteses, Sheesleys, Davys, Oldhams, Snyders, Swopes, Erbs, and entire Estrella Mountain Church, thank you for being the village Noah and I needed through the many ups and downs, befores and afters, and joys and sorrows!

To my Seattle Family, The Haines, The Johnsons, The Bertschs, The Walthers, The Englunds, and the Smiths, who gave me my foundation to become the person I am today!

To every child I have coached in Seattle, Goodyear, Avondale, and Glendale; to every student I have taught in Glendale Elementary, Tolleson Elementary, and through Arizona State University- you all have inspired me and helped me become a better human. I am eternally grateful.

And finally, to all my great fur and scaley loves: Coco, Minnie, Tess, Vivo, Slider, Toothless, and Holly- your enduring love, snuggles, and affection have changed my life forever!

Acknowledgments

Thank you from the bottom of my heart to my absolutely wonderful dissertation chair, Dr. Jason Cheek. Dr. Cheek, you have been a beacon of calm, a true leader, and a fantastic guide through this challenging process. Thank you to my committee member and data expert, Dr. Angel Ford, for your endless patience, guidance, and faith as I worked through some of the most challenging aspects of the dissertation. Thank you to Dr. Mansfield for your incredible support and leadership, helping ensure that this process was achievable yet challenging. To all Liberty Faculty, I cannot thank you enough for this wonderful experience!

Thank you to ASU's Dean Carole Basile, Director Nicole Thompson, and Director Jill Koyama, as your amazing guidance, support, and leadership drives my learning every day, and was especially helpful during my dissertation process. Thank you also to Dr. Meredith Toth, Dr. Erica Mitchell, and Dr. Mark McCain for your incredible above and beyond support to help ensure I could effectively survey students. Thank you also to the incredible Educational Studies Team at ASU, who were always available to answer questions, offer encouraging words, and provide guidance throughout this journey!

A special thank you to Dr. Teresa Foulger who has acted as my mentor for many years, helping me navigate both the dissertation process and higher education. Your support, knowledge, and faith in me have been the catalyst for so much positive change in my career and life! Special thanks also to Dr. Shyla Dogan who has been a mentor and friend, and taught me so much! And a very special thanks to Dr. LeeAnn Lindsay who encouraged me to look at the research side of higher education, knowing I would fall in love! Finally, thank you to Dr. Wendy Barnard who told me 10 years ago I needed to go for my PhD using quantitative research because I would absolutely love it. You were right!

Table of Contents

List of Tables

List of Figures

List of Abbreviations

Council for Exceptional Children (CEC)

Education for All Handicapped Children Act (AHCA)

Emergency Food Assistance Act (EFAA)

Federal Emergency Relief Administration (FERA)

Federal Housing Administration (FHA)

Federal Surplus Relief Corporation (FSRC)

Free and Appropriate Public Education (FAPE)

Health Care for the Homeless (HCH)

Housing Opportunities for Persons with AIDS (HOPWA)

Housing and Urban Development (HUD)

Individuals with Disabilities Education Act (IDEA)

Institute of Higher Education (IHE)

McKinney Homeless Assistance Act (MHAA)

Temporary Emergency Food Assistance Program (TEFAP)

U.S. Interagency Council on Homelessness (USICH)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this quantitative, nonexperimental causal-comparative study is to determine if there is a difference in course completion rates between online students at institutes of higher education (IHE) with disabilities experiencing food and housing insecurity and online students at IHE with disabilities not experiencing food and hunger insecurity. Chapter One provides a background for the topics of course completion rates for IHE students, the fulfillment of basic needs for students at IHE, specifically food and housing security, and basic needs fulfillment for people with disabilities. The background includes an overview of the theoretical framework for this study, Maslow's Hierarchy of Needs. The problem statement examines the scope of the recent literature on this topic. The purpose of the study will be stated, followed by the study's significance. Finally, the research questions are introduced, and definitions pertinent to the study are provided.

Background

People with disabilities, regardless of their status as a student, are at greater risk of having food and housing insecurity than those who do not have disabilities (Schwartz et al., 2019; Williams & Do, 2020). The intersection of disability, academia, and poverty creates unique opportunities for research into how these factors interact (Owens et al., 2020). Williams and Do (2020) found that food, housing, and income deficiencies have a more significant psychological impact on individuals with disabilities than those without disabilities. This psychological distress can negatively impact a focus on education and increase the likelihood that a student will fail to complete coursework (Cotti et al., 2018; Jorgensen et al., 2018; Schwartz et al., 2019).

Students with disabilities have increased rates of attendance at Institutes of Higher Education in the past 10 years; however, overall course completion and graduation rates remain significantly lower than those of peers without disabilities (Glantsman et al., 2022; Lederer et al., 2021; Owens et al., 2020; Potvin et al., 2021; Salkin & Ko, 2020). Online students with disabilities work with universities for academic and related support for their identified disability; however, graduation rates and course completion rates still fall far below peers without disabilities (Potvin et al., 2021). Various factors lead to the challenges students face when they have a disability and attend an IHE (Francis et al., 2019; Potvin et al., 2021).

Research surrounding instructor and student practices has identified factors that cause low course completion rates for online students with disabilities, including instructor failure to provide student accommodations, insufficient student preparation for course rigor, ineffective instructor-student communication, poor student self-advocacy skills, and ableist course expectations (Birdwell & Bailey, 2022; Meeks et al., 2020; Williams et al., 2020). Students with disabilities report higher levels than non-disabled peers of the following: feeling misunderstood by teachers, an unwillingness to ask for support from professors and universities, and disenfranchisement from the university (Birdwell & Bailey, 2022; Francis et al., 2019; Jorgensen et al., 2018; Valle-Flórez et al., 2021). These factors illustrate classroom issues that impact course completion rates, but few studies review the impact of external personal factors such as food and housing security (Fernandes et al., 2021; Jorgensen et al., 2018). Additional support in the areas of basic needs fulfillment, specifically related to food and housing security, may be necessary to ensure more consistent course completion rates (Birdwell & Bailey, 2022; Coleman-Jensen, 2020; Fernandes et al., 2021).

The COVID-19 pandemic of 2020 instigated increased research into support deficiencies for students learning virtually (Glantsman et al., 2022; Lederer et al., 2021; Owens et al., 2020; Salkin & Ko, 2022). The increase in online education due to COVID-19-related school closures showcased many of the problems that exist when supporting students who participate in online education. This included a lack of support by IHE to address food and hunger insecurity for online students (Fernandes et al., 2021; Lederer et al., 2021; Potvin et al., 2021; Owens et al., 2020; Salkin & Ko, 2020). On-campus students have opportunities to obtain food and housing when crises arise, but the average online student is unable to receive many of these supports in a timely fashion due to their lack of proximity to campus resources (Broton et al., 2020; Glantsman et al., 2022; Weissman, 2020). This lack of support increases the likelihood that students fail to complete coursework (Glantsman et al.; 2022 Leung et al., 2021; Waters-Bailey et al.,, 2019; Weissman, 2020; Salkin & Ko, 2020; Stott & Morrell, 2021). Additionally, food and housing insecurity may cause students to choose between coursework and additional jobs, or coursework and childcare, with basic needs fulfillment typically selected over coursework (Stott & Morrell, 2021; Waters-Bailey et al., 2019). Students at online IHE are at an increased risk of facing food and housing insecurity, however, most online universities do not provide additional support for online students in the areas of food and housing (Khosla et al., 2020; Leung et al., 2021; Robbins et al., 2022; Schwartz et al., 2019; Trawver et al., 2020).

Despite what is known about challenges facing online students with disabilities, when students with disabilities fail to complete courses, the disability is often blamed as the root cause of the failure (Birdwell & Bailey, 2022; Meeks et al., 2020; Stott & Morrell, 2021; Williams & Do., 2020). There is a need for deeper inspection of other potential causes

especially when professors have limited training for working with people with disabilities or have online students they do not form relationships with (Jorgensen et al., 2018; Meeks et al., 2020; Stott & Morrell, 2021; Valle-Flórez et al., 2021). These limited professor-student relationships further exacerbate the lack of support for students with disabilities and allow educational leaders to continue their misconceptions that student course failure is due to disability and not external factors (Stott & Morrell, 2021; Valle-Flórez et al., 2021). Exploration of the intersection of food and housing insecurity and disability for online students will increase understanding of basic needs fulfillment as a potential factor in low course completion rates for students with disabilities (Jorgensen et al., 2018).

Historical Overview

Food and housing insecurity often overlap, causing a dual crisis for many IHE students (Olfert et al., 2021; Trawver et al., 2020; Walsh-Dilley et al., 2022). Both the history of education for students with disabilities and the history of food and housing insecurity in America is critical to understand as they contribute to understanding the relationship between online students with disabilities and food and housing insecurity (Potvin et al., 2021; Walsh-Dilley et al., 2022). The problem of food and housing insecurity for on-campus students has been studied in great detail, but limited literature exists regarding food and housing insecurity for online students (Robbins et al., 2022; Speirs et al., 2023). Additionally, people with disabilities facing food and housing insecurity have been studied, but the literature is limited regarding the relationship between online students with disabilities and food and housing insecurity (Speirs et al., 2023; Walsh-Dilley et al., 2022).

The Post-Secondary National Policy Institute (PSNPI) released a 2021 report that included information about students with disabilities in postsecondary schools. The

population of people with disabilities who have bachelor's degrees was up from 13% in 2010 to 18% in 2019. This is still much lower than people without disabilities, where 36% of the population has a bachelor's degree (PSNPI, 2021). In this study, 23% of students with disabilities and 38% without disabilities had graduated after 4 years (PSNPI, 2021). The PNPI included several contributing factors that were reported as influencing decisions not to persist in postsecondary programs. Most of these factors were related to academics; however, one strong outlier was the presence of food and housing insecurity in the lives of students with disabilities (PSNPI, 2021).

Despite historic efforts to reduce hunger, more than 34 million Americans faced food insecurity daily in 2022 (Broton et al., 2022). This impacts rural communities and people of color at higher levels than other Americans, which in turn affects higher numbers of online IHE students as rural communities and people of color attend online IHE at higher rates than in-person colleges (Dzubur et al., 2022; Meza et al., 2019). Unfortunately, many Americans still experiencing hunger no longer qualify for the food stamp and nutritional programs for K-12 schools, as they have aged out of the program (Dzubur et al., 2022; Meza et al., 2019; Speirs et al., 2023).

Currently, 31% of on-campus IHE students are food insecure or at high risk for food insecurity (Oh et al., 2022; Payne-Sturges et al., 2018). Food insecurity can lead to increased risks of sleep disturbances, poor course attendance, and course failure (Dzubur et al., 2022; Meza et al., 2019; Oh et al., 2022; Payne-Sturges et al., 2018; El Zein et al., 2019; Wood & Harris, 2018). Off-campus students, including those online, are at a higher risk of food insecurity than on-campus students (Oh et al., 2022; Payne-Sturges et al., 2018; El Zein et al., 2019). This is critical to explore through research focusing on the relationship between online

students with disabilities' course completion rates and food and housing insecurity (Potvin et al., 2021).

In 2021, 3.7 million people reported housing insecurity; another 7.7 million reported that they were behind on rent (Olfert et al., 2021; Trawver et al., 2020). Unfortunately, 51% of IHE students face housing insecurity during their time in IHE (Olfert et al., 2021; Speirs et al., 2023). Additionally, the longer students attend college, the more likely it is that they will become housing insecure (Olfert et al., 2021; Walsh-Dilley et al., 2022). Housing insecurity has similar effects as food insecurity for IHE students, including poor physical and mental health, increased likelihood of poor course attendance, and increased likelihood of course failure (Speirs et al., 2023; Trawver et al., 2020).

Society-at-Large

With greater educational disparity comes increased income disparity (Cotti et al., 2018; Matsuda, 2020; Sandoval-Palis et al., 2020; Schwartz et al., 2019). Failure to complete postsecondary education by students with or without disabilities hurts income, career trajectory, and consistency of employment (Sanabria et al., 2020; Schwartz et al., 2019). Increased numbers of IHE graduates benefit the country's economy (Matsuda, 2020; Sanabria et al., 2020; Sandoval-Palis et al., 2020). When students fail to complete their degree at IHE, there are negative implications for both the student's earning potential and the economic functions of society (Matsuda, 2020; Sanabria et al., 2020). Because students with disabilities graduate at lower rates than non-disabled peers, this increases the likelihood that individuals with disabilities will be at an economic disadvantage throughout their lives (Nachman & Brown, 2022; Sanabria et al., 2020). Additionally, the children of those who do not complete

IHE are less likely to finish college, thus perpetuating this cycle (Matsuda, 2020; Sanabria et al., 2020; Sandoval-Palis et al., 2020).

IHE are a critical part of employment for many individuals and provide greater economic opportunities for most (Sandoval-Palis et al., 2020). More than ever, students are selecting online postsecondary options (Goodman et al., 2019; Sublett, 2022). More than 50% of students prefer online education to traditional on-campus learning (De Brey et al., 2021; Duffin, 2020). This is true of students with disabilities, whose numbers have also increased due to increased accessibility provided by online education (Dube & Balleni, 2022; Goodman et al., 2019; Sublett, 2022). Students with disabilities enrolled in online education report that they have fewer challenges with course accessibility, less stress due to transportation, increased ability to focus, and many other benefits specific to individual learning needs (Dube & Balleni, 2022; Kotera et al., 2019; Waters-Bailey et al., 2019). Despite all of the benefits online education offers, students with disabilities are still struggling with graduation rates compared to non-disabled peers (Glantsman et al.; 2022 Leung et al., 2021; Waters-Bailey et al., 2019; Weissman, 2020; Salkin & Ko, 2020). Looking beyond the disability of the student, and at the heightened risk factors for both IHE students and people with disabilities provides insight into problems of food and housing insecurity as potential predictors of course failure or early withdrawal for online students with disabilities (Sublett, 2022; Weissman, 2020).

Theoretical Background

Abraham Maslow's theory of human motivation was first published in his seminal text in 1943. Maslow described the importance of basic needs fulfillment as predecessors for higher levels of attainment, including love and belonging, self-esteem, and self-actualization (1943). This theory posits that basic needs, also referred to as physiological needs, must be

met before individuals become motivated to attain goals beyond survival. Food and housing make up a large portion of the physiological needs that must be met for individuals to become motivated to achieve higher levels of success, such as through postsecondary education (Maslow, 1943; Maslow,1954). IHE across the country use Maslow's theories when analyzing the impact of unmet student needs such as food and housing security on student academic outcomes (Hafiz et al., 2023; Jones & Varga, 2021).

Maslow's theory is paramount to the question of success for online IHE students with unique challenges or disabilities (Jones & Varga, 2021; Raven, 2021). Multiple studies demonstrate the links between individuals with disabilities and food and housing insecurity (Cotti et al., 2018; Schwartz et al., 2019; Williams & Do, 2020; Waters-Bailey et al., 2019). Additional studies demonstrate the relationship between off-campus IHE students and food insecurity (Jones et al., 2021; Wu et al., 2020). When students do not have food and housing needs met, regardless of ability or disability, they are less likely to complete courses and graduate (Broton et al., 2022; Hafiz et al., 2023; Nazmi et al., 2018). Maslow's theory explains that when people have achieved a level within the hierarchy, such as having consistent food security and housing security, they will focus their motivation on higher levels (Maslow, 1943; Maslow, 1954). Students unable to have their basic needs, such as food and housing, met are therefore not able to focus their motivation on higher levels of the hierarchy, including self-actualization, which is where higher education goals are found (Maslow, 1943; Maslow, 1954). This combination potentially increases the likelihood that online IHE students with disabilities will have food and housing insecurity, contributing to their high levels of course withdrawal rates (Hafiz et al., 2023; Nazmi et al., 2018). According to Maslow's 1943 and 1954 publications, food and housing insecurity for individuals is likely to prevent

individuals from achieving success or even being motivated for success beyond basic survival. Students with disabilities in online IHE programs are likely to have increased success when the lower levels of Maslow's hierarchy, such as food and housing, are met (Akoto et al., 2023; Jones et al., 2021). This study provides insight into the relationship between food security, housing security, and course completion rates for online IHE students with disabilities.

Problem Statement

Historically, students with disabilities complete post-secondary coursework at a lower rate than peers without disabilities (Goodman et al., 2019; Klivlighan et al., 2020; Myhr et al., 2018). Advances have been made in providing specialized support for students based on individual disability needs; however, this has not solved the problem of discrepancies in course completion rates for students with disabilities (Goodman et al., 2019; Hubbard et al., 2021). People with disabilities are at a higher risk of living in poverty, experiencing food insecurity, and experiencing housing insecurity than students without disabilities (Jones et al., 2021; Wu et al., 2020). When IHE students experience increases in food insecurity, housing insecurity, and homelessness, their likelihood of completing courses decreases (Broton et al., 2022; Nazmi et al., 2018). There is significant research on the role that basic needs fulfillment plays for on-campus IHE students with and without disabilities, but there is limited research for online IHE students with disabilities (Atwari et al., 2020; Birdwell & Bailey, 2022; Broton et al., 2022; Nazmi et al., 2018; Williams & Do., 2020). The problem is that the literature has not fully addressed the relationship between course completion rates and food and housing insecurity for students with disabilities at IHE.

Purpose Statement

The purpose of this nonexperimental quantitative, causal-comparative study is to evaluate the relationship between course completion for online students with disabilities at IHE and basic needs fulfillment in food and housing security. This study will compare course completion rates of students with disabilities who are experiencing basic needs deficiencies with those who are not experiencing basic needs deficiencies. Participants in the study will be selected based on course type (online), university, and degree program. This study will take place at University A in the Educational Studies undergraduate degree program in the Southwestern United States.

There are two independent categorical variables for this study. The first is food security, with levels including food secure or insecure. The United States Department of Agriculture (USDA) defines food insecurity as meeting three out of five criteria related to food attainment: The inability to obtain food when it runs out, not being able to afford to eat balanced meals, skipping meals out of necessity, eating less than desired due to necessity, and feeling hungry without the ability to have more food (USDA, 2023). The USDA defines being food secure as meeting two or less of the five criteria related to food attainment as stated (USDA, 2023).

The second categorical variable is housing security, with the two possible levels including housing secure or housing insecure. Housing security and insecurity is defined by the amount of risk factors an individual has faced in the past year, including the ability to pay rent, evictions, the ability to pay for electricity and gas or oil, multiple family households, and the use of homeless shelters or abandoned buildings as temporary housing (Lee et al., 2021). Students have experienced more than one risk factor in the past year will be considered

housing insecure (Lee et al., 2021) Students that have experienced zero or one risk factor in the last year will be considered housing secure (Lee et al., 2021).

The dependent variable is the percentage of course completion for each student in the Fall 2023 semester. The percentage of course completion will be determined by calculating the percentage of courses a student completes during one semester. Course completion is defined as remaining enrolled in the course to completion and receiving a passing grade of an A, B, or C (Murphy & Stewart, 2017). The population will include online students who self-identify as having a disability. These students are part of the educational studies Bachelor of Arts degree within a teachers' college at a 4-year university in an online setting.

Significance of the Study

Online IHE students with disabilities who are struggling with food and housing insecurity are less likely to succeed academically than peers who are not struggling with food and housing insecurity (Cotti et al., 2018; Schwartz et al., 2019). Online students with disabilities interact less with faculty, other students, and staff at universities and receive less individualized support than peers who take in-person courses (Gin et al., 2021; Hansen & Dawson, 2020). This provides greater potential for students with disabilities who have food and housing insecurity to be overlooked by peers and faculty who could connect students to IHE support (Gin et al., 2021; Trybus et al., 2019). Students with disabilities who are not succeeding or participating in a course may be overlooked by faculty members who assume the disability is the root cause of their academic failure, when it may be due to a lack of basic needs fulfillment (Gin et al., 2021; Hansen & Dawson, 2020; Trybus et al., 2019).

Determining if a relationship exists between food and housing insecurity and course completion rates for students with disabilities will allow faculty and support staff to recognize

the need for increased support to improve course completion rates (Trybus et al., 2019). Greater awareness of the challenges students face beyond disabilities will help IHE prioritize support for online students with disabilities (Lightfoot et al., 2018; Trybus et al., 2019). Universities currently struggle to provide resources for food and housing insecurity, an issue that must be addressed in both online and on-campus populations (Broton et al., 2022; Nazmi et al., 2018). Understanding the prevalence of food and housing insecurity for students with disabilities at online IHE will contribute to awareness and action for IHE (Gin et al., 2021; Lightfoot et al., 2018).

In addition to contributing to the understanding of faculty and staff at IHE, this study will also contribute to future studies using Maslow's theory of human motivation and hierarchy of needs as a theoretical base for research (Maslow, 1943; Maslow; 1954). Understanding the relationship between online IHE students with disabilities, food, and housing insecurity, and course completion rates may provide further support for Maslow's theory that basic needs fulfillment is a precursor for academic success (Maslow, 1943; Maslow; 1954).

Research teams have examined various aspects of this study but have not fully addressed the gap in the literature regarding the intersectionality of online students with disabilities, course completion rates, and food and housing insecurity. This limited research has mixed findings that demonstrate the need for additional research. Salkin & Ko (2020) researched basic needs fulfillment for students at online IHE, finding that food and housing insecurity affects online students; however, they did not specifically research students with disabilities. Brown & Kangan's 2020 study also examined the impact of providing $25,000 in emergency funds to students, as well as laptops for students' use. Again, this was a broad

study that focused more on face-to-face students than online students, and disability was not an examined factor. Trawver et al.'s 2020 research also found that fulfillment of basic needs can positively impact student grades and personal life. This research team identified strong growth patterns, with more students at IHE facing food and housing insecurity each year (Trawver et al., 2020). When disability was covered in studies, such as Weinstein et al., (2021), the researchers describe the importance of meeting the basic fulfillment needs of students with disabilities, there is little discussion on how this impacts course completion rates for students, and how off-campus issues with food and housing insecurity are handled.

Research Question

RQ1: Is there a difference between the percentage of courses completed among online students with disabilities who are experiencing food and/or housing insecurity and those who are not?

Definitions

1. *Disability:* Any one or a combination of the 13 disability categories recognized under the Individuals with Disabilities Education Act (IDEA) including specific learning disability, other health impairment, autism spectrum disorder, emotional disturbance, speech or language impairment, visual impairment including blindness, deafness, hearing impairment, deaf-blindness, orthopedic impairment, intellectual disability, traumatic brain injury, or multiple disabilities (National Dissemination Center for Children with Disabilities, 2012).
2. *Food insecurity:* Individuals with food insecurity will have met three or more of the following criteria in the past year: The inability to obtain food when it runs out, not being able to afford to eat balanced meals, skipping meals out of necessity, eating less

than desired due to necessity, and feeling hungry without the ability to have more food (Coleman-Jensen, 2020).

3. *Food security:* Individuals with food security will have met two or less of the following criteria in the past year: The inability to obtain food when it runs out, not being able to afford to eat balanced meals, skipping meals out of necessity, eating less than desired due to necessity, and feeling hungry without the ability to have more food (Coleman-Jensen, 2020).
4. *Housing Insecurity:* Individuals with housing insecurity will have experienced two or more risk factors experienced in the past year, including the inability to pay rent, evictions, the inability to pay for electricity and gas or oil, multiple family households, and the use of homeless shelters or abandoned buildings as temporary housing (Lee et al., 2021).
5. *Housing security:* Individuals with housing security will have experienced one or less risk factors experienced in the past year, including the inability to pay rent, evictions, the inability to pay for electricity and gas or oil, multiple family households, and the use of homeless shelters or abandoned buildings as temporary housing (Lee et al., 2021).
6. *Maslow's Theory of Motivation:* A hierarchy where each level must be met before moving to the next level. The levels include, from the bottom upwards: physiological needs, safety needs, love and belonging, esteem, and self-actualization (Maslow, 1943; Maslow, 1954).
7. *Physiological needs:* food, water, warmth, and rest (Maslow, 1943; Maslow, 1954).

CHAPTER TWO: LITERATURE REVIEW

Overview

The purpose of this literature review is to present the context for this study, including the history and current research of special education, food security, and housing security in America. The intersectionality of IHE student status, disability, food insecurity, and housing insecurity will be presented as they relate to course completion rates. Current research will explain the relationship between online IHE students and food and housing insecurity. The research will also describe course completion rates for online IHE students with disabilities. The chapter opens with the theoretical framework, Abraham Maslow's theory of human motivation (Maslow, 1943; Maslow, 1954), which is foundational to this research study. A description of current approaches by IHE to provide academic, food, and housing support for online IHE students with disabilities will complete the chapter, which ends with a summary.

Theoretical Framework

Abraham Maslow first published his theory on Maslow's hierarchy of needs in *Psychology Review* in 1943 in the article "A Theory of Human Motivation." This theory states that the basic needs of humans must be met in relatively sequential order for individuals to achieve motivation for continuous upward mobility toward fulfillment of one's fullest potential (Maslow, 1943). This theory describes a hierarchy of needs. The hierarchy is often depicted as a pyramid, with the base representing physiological or basic needs. This level includes survival needs, such as food, water, warmth, and sleep. Positioned above the physiological needs, Maslow includes another level of basic needs: safety. This includes elements such as physical security and a safe, permanent living location. Maslow posits that IHE must help students meet these basic needs for them to move towards the next level of

motivation, psychological needs (Maslow, 1943; Maslow, 1954). Psychological needs include belongingness and love, such as intimate relationships and friendships. Esteem needs are positioned above belongingness and love in the fourth level of the hierarchy. This includes stature or prestige amongst peers and in society, as well as accomplishments. The uppermost section of the hierarchy of needs is the area of self-fulfillment, which includes achieving one's fullest potential. Maslow recognized that the most basic needs will be the dominant motivator until they are consistently met (Maslow, 1943; Maslow, 1954). Following the initial theory published in 1943, Maslow added another level, transcendental needs, to the hierarchy of needs in his 1954 book, *Motivation and Personality*. This relates to individuals' spiritual needs and altruism (Maslow, 1954). Maslow maintains that basic needs, or deficiency needs, must be met before individuals can successfully reach their potential in growth needs such as academics (Maslow, 1954).

Research demonstrates that students find Maslow's physiological and psychological needs very important, as university students rank safety, security, and belonging as three of the six most critical aspects of student life (Abbas, 2020; Griffith & Slade, 2018; Noltemeyer et al., 2021). Maslow's hierarchy of needs identifies a method for understanding where a learner's motivation is likely to be most focused based on what needs are being met or unmet (Maslow, 1943). For example, students who face food insecurity during their years at IHE perform worse academically than students who do not face food insecurity (Burcin et al., 2019; Schlesselman & Psych, 2019). When students' basic needs are met, they move toward higher levels of the hierarchy, including self-actualization and achieving academic goals (Noltemeyer et al., 2021; Schlesselman & Psych, 2019).

In a 2021 study, Dwivedi & Badge examined Maslow's theory of motivation to determine if it was still relevant after the worldwide impact of COVID-19. Their findings demonstrated an increase in participant perception of the importance of basic needs fulfillment (Dwivedi & Badge, 2021). This demonstrates the continued relevance of Maslow's theory decades after his first publication (Dwivedi & Badge, 2021). Yurdakul & Arar's 2023 large mixed-methods study also found that Maslow's theory of motivation remains relevant to study participants; although slight cultural variations may exist in terms of the ranked order of the levels of the pyramid, the vast majority of people still find basic needs fulfillment, including food and housing security as the factor that is most critical for success in all other levels of the hierarchy (Yurdakul & Arar, 2023). These studies demonstrate that fulfilling needs on the lower levels of the hierarchy can lead to success in the higher levels of the hierarchy (Noltemeyer et al., 2021; Schlesselman & Psych, 2019; Yurdakul & Arar, 2023).

Runesi et al.'s 2022 research demonstrates that student success aligns with student achievement at the different levels of Maslow's hierarchy. The more aspects of the hierarchy a student reports to have achieved, the more likely their academic success at their university is (Runesi et al., 2022). While students may not use the labels and titles developed by Maslow, this type of research indicates that students have a general awareness of the role that basic fulfillment plays in their academic success. In Abbas' 2020 study, students identified housing and safety, both considered by Maslow as basic needs, to be a major factor in their success or failure at their university. IHE must also recognize that in addition to student failure, many students will choose to migrate to IHE if they believe it will better meet their basic needs (Dohlman et al., 2019). Supporting students' basic needs impacts student academic success and can impact enrollment when needs are not addressed. This is especially true when

students can find IHE with more effective support systems that allow for greater basic needs fulfillment (Dohlman et al., 2019).

Maslow's theory and corresponding research into student success allow for consideration of potential institutional bias towards students with disabilities. Students with disabilities are being accepted to IHE in record numbers, yet the number of students with disabilities failing to complete coursework is significantly higher than students without disabilities (Glantsman et al., 2022; Lederer et al., 2021; Owens et al., 2020; Potvin et al., 2021; Salkin & Ko, 2020). Many professors believe this low success rate is primarily caused by the students' disability (Birdwell & Bailey, 2022; Meeks et al., 2020; Stott & Morrell, 2021; Williams & Do., 2020). Failure to examine other causes, especially the link between disability and food and hunger insecurity, perpetuates this problem. Applying Maslow's theories allows for consideration of the external factors that may impact student success.

This study contributes to exploring Maslow's theory of motivation and hierarchy of needs in higher education settings. Examining the relationship between online IHE students with disabilities' food and housing status and their course completion rates can advance understanding of Maslow's theory regarding personal fulfillment through achieved potential (Maslow, 1943). Research is necessary to determine if online IHE students with disabilities are failing or dropping out of courses due to circumstances in Maslow's lowest level of motivation- the areas of basic needs fulfillment, due to student disability, or due to a combination of both factors. Understanding how food and housing insecurity play a role in the academic success or failure of IHE students with disabilities will allow for increased awareness of steps IHE must take to support students. This study will allow for further exploration of Maslow's hierarchy as it relates to online IHE students with disabilities.

Related Literature

Literature related to course completion rates for online IHE students with disabilities allows further insight into current problems, including historical context for students with disabilities, basic needs fulfillment throughout history, and the intersectionality of disability, food and housing insecurity, and enrollment in an online IHE (Carroll et al., 2020; Ellis et al., 2021; Rosenbaum, 2018). Additionally, current practices taken by universities to support online IHE students with disabilities are reviewed (Carroll et al., 2020; Rosenbaum, 2018). In addition to these issues, current literature demonstrates problems surrounding basic needs fulfillment for several overlapping populations: students with disabilities (Carroll et al., 2020; Rosenbaum, 2018), students attending in-person IHE (Broton et al., 2022; Nazmi et al., 2018), and students attending IHE online with disabilities (Athens, 2018). The literature illustrates the necessity of research into the problem of basic needs fulfillment for online university students with disabilities.

Historical Context

To understand the current problems surrounding basic needs fulfillment and course completion rates for online IHE students with disabilities, it is necessary to first review the historical context of education for students with disabilities, the history of food insecurity in America, and the history of housing insecurity in America (Berg & Gibson, 2022; Fielding-Singh, 2021; Lippert & Lee, 2021). Understanding this context provides background information to review the challenges contributing to some of the current issues plaguing online IHE students with disabilities (Berg & Gibson, 2022; Fielding-Singh, 2021; Lippert & Lee, 2021).

The History of Education for Students with Disabilities

In 1817, The American School for the Deaf opened and became the first school for students with disabilities in the Western Hemisphere (Standen, 2021; Stiker et al., 2019; Williamson, 2020). By 1840, the United States government mandated compulsory education, requiring the government to provide education for all students. Despite this law, educators often sent students with disabilities to separate schools, reinforced by the passage of Plessy v. Ferguson in 1896 and Beattie v. Board of Education in 1919 (Standen, 2021; Stiker et al., 2019). Both laws upheld the idea of "separate but equal" education, maintaining the separation of most students with disabilities from their non-disabled peers (Kauffman et al., 2021; Williamson, 2020). In 1922, the first group that advocated for children with disabilities, the Council for Exceptional Children (CEC) was formed to help ensure students with disabilities received free and appropriate public education (FAPE) (Kauffman et al., 2021; Williamson, 2020). This group still exists and works to achieve this same goal. The landmark 1954 Brown v. Board of Education ruling overturned the enforcement of "separate but equal" schools, opening the door for students with disabilities to be educated alongside their peers (Standen, 2021; Stiker et al., 2019; Williamson, 2020). The Elementary and Secondary Education Act of 1965 gave grants to schools to develop programming and education for students with disabilities (Colker, 2018; Kauffman et al., 2021; Zirkel, 2020). The case for the inclusion of students with disabilities was furthered by the 1971 Pennsylvania Association for Retarded Children v. Commonwealth of Pennsylvania case, which was won by students with intellectual disabilities, calling for publicly funded schools to ensure that support was provided for students based on their individual needs after a thorough evaluation was conducted (Colker, 2018; Zirkel, 2020). In 1973 students with disabilities received further

rights and protections through Section 504 of the Rehabilitation Act (Schellekens, 2019; Standen, 2021; Stiker et al., 2019; Williamson, 2020; Zirkel, 2020). This act made discrimination against people with disabilities illegal, included the right for all students to FAPE, and for students to be taught in the Least Restrictive Environment (LRE). In 1975, the United States government passed the Education for All Handicapped Children Act (EAHCA), allowing all students the right to public education, with services provided for children from ages three to 21 (Standen, 2021; Shin, 2021). In 1990, the United States government passed the Americans with Disabilities Act, which was inclusive of people with disabilities of any age (Zirkel, 2020). This act provided the right to people of all ages with disabilities to be free from discrimination at workplaces, schools, and in any public setting (Colker, 2018; Schellekens, 2019). Also, in 1990, the Individuals with Disabilities Education Act (IDEA) was passed. This law includes FAPE, LRE, Individualized Education Plans (IEP), parent and student participation in decision-making processes, evaluations for students, and procedural safeguards (Miller et al., 2019; Shin, 2021; Zirkel, 2020). This law was reauthorized in 2004 and 2015 (Schellekens, 2019; Standen, 2021; Stiker et al., 2019; Williamson, 2020).

ADA and Section 504 of the Rehabilitation Act have important implications for IHE students with disabilities. These laws include mandatory access to post-secondary opportunities for students with disabilities (Rozalski et al., 2021; Williamson, 2020). These laws make it illegal for schools to do several things: to deny admissions based on disability, be questioned about the presence of a disability, or be excluded from classes or programming based on the presence of a disability (Rozalski et al., 2021; Williamson, 2020).

Rights for students from K-12 education to IHE change with the student's transition out of elementary and high school education (Osborne et al., 2021). Post-secondary schools

can deny access to the school if a student does not meet the requirements, such as test scores or grade point averages (Bagenstos, 2021; Osborne et al., 2021; Raj, 2021). Students are responsible for providing documentation of their disability, requesting accommodations, and communicating regularly with the disability support office at their IHE (Bagenstos, 2021; Osborne et al., 2021; Raj, 2021). Providing documentation of disability to an IHE can be concerning for students worried about the stigma of disability and the perception of their abilities from professors (Kreider et al., 2021; Potvin et al., 2019; Raj, 2021). Another challenge is the lack of parental involvement. While parents are required to be included in the IEP and evaluation process for K-12 students, students at colleges and universities are considered adults and are expected to handle their interactions with the disabilities services provider (Bagenstos, 2021; Kreider et al., 2021; Osborne et al., 2021; Raj, 2021). This change in the level of support may present challenges for students who are used to the presence and support of an IEP team (Kravets & Wax, 2021). Despite all of the protections, other challenges also exist. Accommodations are not guaranteed at this level of schooling (Kravets & Wax, 2021; Kreider et al., 2021). For example, a school may not provide accommodations that they deem time-consuming or expensive, potentially harming their student who needs them to succeed (Kreider et al., 2021; Potvin et al., 2021). Additionally, schools will typically not provide personal device support, requiring students to obtain these materials independently (Kravets & Wax, 2021). Students with disabilities at online IHE are vulnerable to the challenges that arise from this transition from K-12 disability services to IHE disability services (Kravets & Wax, 2021; Kreider et al., 2021).

The complex history of special education and disability services in America demonstrates growth and commitment to continuously increasing services and support for

IHE students with disabilities (Carroll et al., 2020; Rosenbaum, 2018). Despite this commitment, many universities fail to support students beyond academic support, or support directly related to a student's disability (Bagenstos, 2021; Rozalski et al., 2021; Williamson, 2020). There is limited research beyond academic or disability-specific support for IHE students with disabilities, despite the plethora of laws and regulations meant to help students succeed in post-secondary education (Raj, 2021). This failure to consider Maslow's theory of motivation means that many online IHE students with disabilities are not receiving necessary support at the bottom level of the hierarchy- food and hunger security (Maslow, 1943; Maslow, 1954). According to Maslow's theory, this will make it much more difficult to have motivation for academics and anything beyond meeting basic survival needs (Maslow, 1943; Maslow, 1954).

The History of Food Insecurity in America

The history of food and housing insecurity in America is complex. Despite America being one of the largest food producers in the world, one in five children and adults experience food insecurity daily (Feeding America, 2023). In a 2021 report by the United States Department of Agriculture (USDA), 10.2% of homes in America are food insecure, with 3.8% of homes considered to have "very low food security." Hunger has always been an issue in America, but the transition from farming and agrarian communities after the industrial revolution brought on new levels of hunger as the Great Depression began in 1929 (Fielding-Singh, 2021). Despite widespread hunger and unemployment, the lack of food dissemination processes caused farmers to destroy unclaimed food, while others lined up in bread lines to help their families survive (Fielding-Singh, 2021; Hossfeld et al., 2018). President Franklin Delano Roosevelt addressed this through the New Deal, and two new

organizations were created to support the purchase and dissemination of excess food in areas of plenty to support people in areas of need (Hossfeld et al., 2018). These organizations were the Federal Emergency Relief Administration (FERA) and the Federal Surplus Relief Corporation (FSRC) (Congressional Hunger Center, 2021). These programs would be renamed and repeated in 1973 and 1981 to address hunger issues around the country (Dickinson, 2019). In addition to these new organizations to combat hunger, food stamps were created in 1939 (Congressional Hunger Center, 2021). By 1942, half of United States counties were participating in the program, as were 88% of cities. As World War II began and hunger decreased, policymakers recognized that members of the population were still experiencing food shortages (Fielding-Singh, 2021; Hossfeld et al., 2018). This led to the creation of the National School Lunch Act in 1946, which was meant to ensure that students were not going hungry (Dickinson, 2019; Fielding-Singh, 2021; Hossfeld et al., 2018). As America became more prosperous during and after World War II, some of the programs that were aimed to support the hungry were discontinued, including food stamps (Dickinson, 2019; Fielding-Singh, 2021; Hossfeld et al., 2018) In 1960, President John F. Kennedy, who had witnessed hunger firsthand in the Appalachian states and the Midwest called for a return to food stamps (Dickinson, 2019). The food stamp program was then made permanent by President Lyndon B. Johnson in 1964. In 1966 the School Breakfast Act was started and made permanent in 1975, further demonstrating the need for support for students facing hunger (Dickinson, 2019; Fielding-Singh, 2021; Hossfeld et al., 2018)

Despite the steps taken to support people facing food insecurity, many Americans, especially those in rural areas, were still living with hunger (Zepeda, 2018). In 1968, 280 counties where food insecurity was prevalent were identified in the United States (Fielding-

Singh, 2021; Hossfeld et al., 2018). This led to the development of the Summer Food Service Program and the Child and Adult Care Food Program (Fielding-Singh, 2021; Hossfeld et al., 2018). Again, this demonstrated a commitment to feeding school-aged children in need.

By 1977, the modern-day food stamp program began to serve millions of Americans. In 1983 when a recession hit, President Ronald Regan enacted the Emergency Food Assistance Act (EFAA) and the Temporary Emergency Food Assistance Program (TEFAP) (Dickinson, 2019; Fielding-Singh, 2021; Hossfeld et al., 2018). Hunger continued to plague American families, with other acts passed in the 1990s to decrease hunger, including the Childhood Hunger Relief Act (Fielding-Singh, 2021; Hossfeld et al., 2018)

Throughout American history, hunger has been addressed through legislation time and again, but clear solutions for at-risk populations, such as people with disabilities and IHE students, have not been achieved (Leibman, 2020; Zepeda, 2018). In 2021, 53 million Americans still used food banks, and 1 in 4 children were still considered food insecure (Feeding America, 2023; Zepeda, 2018). Unfortunately, online students at IHE with disabilities often fall into the category of being food insecure (Innis et al., 2020; LeBlanc, 2020. IHE students with disabilities report many reasons for their food insecurity: feeling a sense of shame about using food stamps or food pantries, lack of transportation to obtain food that is free or affordable, being forced to choose between food and other necessities, such as medication or materials for their disability, the cost of attending IHE, and lack of awareness regarding what food may be available to them due to their disability or status as an IHE student (Berg & Gibson, 2022; Innis et al., 2020; LeBlanc, 2020; Leibman, 2020; Zepeda, 2018). Regardless of the cause, students cannot reach their fullest potential without meeting these basic needs (Maslow, 1945).

The History of Housing Insecurity in America

Housing insecurity has a similarly complex history as food insecurity (King, 2018; Trawver et al., 2020). Like food security, housing security is considered one of the critical factors in Maslow's hierarchy that must be addressed before individuals can be motivated to achieve academically (Maslow, 1943; Maslow, 1954). Unfortunately, America has a long history of housing insecurity for many citizens, especially those with risk factors, such as people with disabilities and students at IHE (Gorfido, 2020; Trawver et al., 2020). Understanding the history of housing insecurity in America provides context for the challenges online students at IHE with disabilities face when navigating the complex housing landscape.

In the 19th century, homelessness or nomadic cultures were considered a negative influence on society that detracted from the expectations of home life at the time (Eide, 2022; Gorfido, 2020; Paik, 2021, NAP, 2018). Instead of providing more homes, the nation focused on job development as a means to keep people in one home instead of traversing the country looking for work (Eide, 2022; NAP 2018). Railroads and the industrial revolution allowed people to travel from location to location looking for employment; thus, steady jobs were considered a fix for homelessness (Dawkins, 2021; Gorfido, 2020; NAP, 2018). During WWII, jobs became steadier and more reliable, so the majority of homeless people shifted from young men looking for work to those over 50, those with disabilities, or those dependent on welfare (Dawkins, 2021; NAP, 2018).

In the post-war era, many significant changes contributed to the current housing crisis (Dawkins, 2021). People with mental health disabilities who were once institutionalized were released, many with no place to go (Beck & Twiss, 2018; NAP, 2018). This

deinstitutionalization led to almost 400,000 people being simultaneously released from institutions and hospitals. Cities became gentrified, Housing and Urban Development (HUD) budgets were slashed, and affordable housing was limited (Dawkins, 2021; NAP, 2018). The Federal Housing Administration (FHA) initially only provided loans for white borrowers in the suburbs, further contributing to segregation and disproportionate housing insecurity for people of color (NAP, 2018). These factors all led to increases in the homeless population nationwide.

In 1965, The Housing and Urban Renewal Act of 1965 provided rent support for those who were disabled, elderly, or low-income, providing some relief for those who were housing insecure and fell into one of those categories (NAP, 2018). The Fair Housing Act, Title VIII of the Civil Rights Act of 1968, protected people with disabilities and family structure (Eide, 2022; Paik, 2021; NAP, 2018). Later, protection based on age would be added to Title VIII. Despite the legality of these acts, they are often not enforced consistently or appropriately, further contributing to housing issues (Eide, 2022; Paik, 2021; NAP, 2018). In 1977, The McKinney Homeless Assistance Act (MHAA) provided additional resources for the homeless and the housing insecure (Eide, 2022; NAP, 2018). Health Care for the Homeless (HCH) was added to the MHAA, providing additional support for the homeless who needed medical care (Beck & Twiss, 2018; NAP, 2018). The U.S. Interagency Council on Homelessness (USICH) was added to these acts by McKinney, creating an agency to study and respond to homelessness and housing insecurity (Beck & Twiss, 2018; King, 2018; NAP, 2018).

The Social Security Disability Benefits Reform Act of 1984 provided some support for people with disabilities to find housing, but many still experienced housing insecurity (Beck & Twiss, 2018; Eide, 2022). In addition to this act, the Housing Opportunities for

Persons With AIDS (HOPWA) was created to help support people with HIV/AIDS who were more likely to be homeless or housing insecure (Eide, 2022; NAP, 2018). Efforts have continued to end chronic homelessness, with many resources and laws dedicated to this cause (Broton et al., 2022; Paik, 2021). However, the housing insecurity crisis continues today, as the number of people in America with medical needs, disabilities, psychiatric needs, and substance addictions increases consistently (Beck & Twiss, 2018; King, 2018). Like food insecurity, housing insecurity is part of basic needs fulfillment, and challenges in this area may detract from student motivation to achieve higher levels of attainment, including completing their college degree (Maslow, 1945).

Intersectionality of Disability and Food and Housing Insecurity

Students with disabilities are food and housing insecure at a higher rate than their peers without disabilities (Williams & Do, 2020; Schwartz et al., 2019). Without these basic needs being met, these students are likely to struggle to accomplish their academic goals (Maslow, 1943; Maslow, 1954; Wu et al., 2020). Individuals with disabilities are at a higher risk for poverty than those without disabilities (Jones et al., 2021; Schwartz et al., 2019; Williams & Do, 2020). Poverty leads to food insecurity and housing insecurity, which also increases the likelihood of poor educational attainment (Jones et al., 2021; Mitra et al., 2013; Wu et al., 2020). Living in poverty and having a disability contribute to poor academic outcomes separately, together increasing the odds of poor academic attainment (Jones et al., 2021; Mitra et al., 2013; Reims & Tophoven, 2021; Wu et al., 2020). This combination tends to create cycles within families that prohibit individuals from exiting poverty or advancing their academic success as individuals must focus on the lower levels of Maslow's hierarchy

instead of higher levels which include academics and meeting career potential (Jones et al., 2021; Reims & Tophoven, 2021; Wu et al., 2020).

Disability and Food Insecurity

Food insecurity is more likely among people with disabilities than those without disabilities (Schwartz et al., 2019; Williams & Do, 2020). People with mental health disabilities fare the worst of individuals with disabilities regarding food security (Schwartz et al., 2019; Williams & Do, 2020). Households that have any members with a disability are more likely to have food insecurity or low food security than households without members with a disability (Schwartz et al., 2019; Williams & Do, 2020). This lower-level need on Maslow's hierarchy not being met increases the likelihood that people with disabilities will struggle to reach their academic potential (Hamilton et al., 2020; Lu et al., 2019; Maslow, 1943). Greater awareness of how disability and food insecurity interact is critical for IHE to understand how to support students.

IHE faculty and staff must be aware that increases in diagnosed disabilities correspond to increases in the likelihood of food insecurity (Hadfield-Spoor et al., 2022; Heflin et al., 2019; Park et al., 2020). The following represents the likelihood that a person will be considered food insecure based on their disability status, from least likely to be food insecure to most likely to be food insecure: 1) People with no disabilities, 2) people with only physical disabilities, 3) people with mental/cognitive disabilities, 4) people with both physical and mental/cognitive disabilities (Hadfield-Spoor et al., 2022). People with both physical and mental/cognitive disabilities are also the most likely to have chronic food insecurity as opposed to temporary food insecurity (Hadfield-Spoor et al., 2022).

Heflin et al.'s 2019 study found that multiple pathways to food insecurity exist among people with disabilities. Disability-related challenges related to sight, hearing, money-management skills, and mobility limitations occurred independently and together for individuals with disabilities, leading to an increased potential for food insecurity. Cognitive disabilities that impact money management have been shown to increase the likelihood of food insecurity at a higher rate than simply not having enough money (Coleman-Jensen, 2020; Heflin et al., 2019). This is an important factor to consider for IHE when approaching how to best support online IHE students with disabilities.

Another essential factor is the relationship between mental health and food insecurity. When examining how mental health and food security interact among many families, it becomes impossible to tell which is the catalyst for the other (Pillay & Quarmby, 2018; Williams & Do, 2020). Mental health disabilities are a predictor of food insecurity, and food insecurity is a predictor of mental health disabilities (Williams & Do, 2020). While more studies are needed to determine how each impact the other, it is still critical to consider a two-pronged approach to support individual needs in both areas.

Disability and Housing Insecurity

Poverty has historically created issues surrounding safe housing for people with disabilities (Aitken et al., 2019; Whittle et al., 2020). People with disabilities are more likely than non-disabled peers to live in housing areas with high crime rates and insufficient shelter (Aitken et al., 2019; Glendening et al., 2018; Whittle et al., 2020). People with certain disability types may require home modifications for safety, yet these needs are often not addressed, leading to hazardous living situations for many people with disabilities (Aitken et al., 2019; Glendening et al., 2018). Disability is a predictor of unsafe housing, with people

who have intellectual or mental health disabilities the most likely to live in the least safe environments (Aitken et al., 2019; Whittle et al., 2020). For those with severe and persistent mental illness (SPMI), housing security is especially challenging, with both a lack of effective treatment and insufficient support systems playing a role in continuing this societal problem (Gorfido, 2020).

Another disability factor contributing to housing insecurity at above-average rates relates to people who live in a household or are considered to have special health care needs (SHCN) (Rose-Jacobs et al., 2019). Families with a member who has SHCN are more likely to face housing insecurity than families without a member with SHCN, due to the burden of healthcare costs and the limited support programs available for specialized healthcare for rare conditions (Rose-Jacobs et al., 2019). This causes these families to have an increased frequency of late rent or mortgage payments, moves to new locations, and homelessness (Rose-Jacobs et al., 2019).

Unsafe housing conditions can also lead to inadequate access to medical care as required, increasing the lack of safety for individuals with disabilities (Aitken et al., 2019; Semeah et al., 2019). Medical care and safety are also aspects of the lower levels of Maslow's hierarchy that must be met to become motivated towards achievement above basic survival (Maslow, 1943; Maslow, 1954). In Glendening et al.'s 2018 study, families with members with a disability receiving housing and food support were more likely to become self-sufficient than families without a member with disabilities. This study demonstrates that specific obstacles for families with disabilities can be addressed through social support and may provide motivation that allows families to increase self-sufficiency (Glendening et al., 2018).

IHE Students and Food and Housing Insecurity

University students across both community colleges and undergraduate programs are experiencing growing basic needs concerns, including increases in food insecurity, housing insecurity, and issues surrounding personal safety (Broton et al., 2022; Olfert et al., 2021; Trawver et al., 2020). IHE students without basic needs fulfillment are at higher risk of discontinuing their education and participating in risky sexual behaviors to obtain food, shelter, or money (Olfert et al., 2021; Trawver et al., 2020). These challenges are all potential contributing factors to online IHE students with disabilities completing courses at a lower rate than their peers (Nazmi et al., 2018).

IHE Students and Food Insecurity

In 2018, Nazmi et al. found in 8 studies of more than 50,000 students that 41.4% of IHE students will face food insecurity during their IHE enrollment, while Ofert et al. found in 2019 that 53% of IHE students faced food insecurity. Unfortunately, the majority of universities have not identified consistent ways to meet the needs of students experiencing food insecurity (Broton et al., 2022; Nazmi et al., 2018). While many students may face poverty that leads to food insecurity, students report feeling that having to fill out detailed questionnaires that require them to describe the depths of their poverty to obtain food vouchers at university can feel dehumanizing (Broton et al., 2022; Speirs et al., 2023). Another concern regarding food insecurity is the lack of campus publicity about food voucher programs that could support students (Broton et al., 2022; et al., 2016; Speirs et al., 2023). In a 2022 study by Broton et al., only 16% of colleges reported are proactively advertising their food voucher programs to all students. In this same study, despite programs to support students that are in place, many students cannot access their meal plan cards regularly due to

time poverty, or transportation issues on days when they are not on campus or for students who live off of campus (Broton et al., 2022; Hagedorn et al., 2021). The challenges of food insecurity amongst IHE students lead to feelings of isolation, poorer academic success rates, depression, and risk-associated behaviors, including unprotected sex and drugs (Hagedorn et al., 2021; Hallett & Frias, 2018).

The COVID-19 pandemic offered a glimpse into what college life could look like as the problem of hunger for IHE students became significantly more publicized and addressed. Bergdahl et al.'s 2022 study examined how different researchers systematically approached the problem of hunger at IHE. Their findings showed multiple avenues for helping students at IHE decrease food insecurity. This included access to food support programs for students from low-income families or foster homes, the development and publication of more food pantries on and around campuses, and an increase in PELL grants to match tuition inflation costs (Bergdahl et al., 2022).

IHE Students and Housing Insecurity

Safe housing plagues many university students during their IHE years, with rates of IHE student homelessness reported across studies as between 5 and 14% of the student population (Hallet & Frias, 2018; Trawver et al., 2020). In a 2019 study of 22,000 students by Ofert et al., 44% of students identified as having insecure housing, meaning that their housing situation was unstable or unreliable. This issue disproportionately plagues students of color, students with disabilities, and first-generation IHE students (Hallett & Frias, 2018; Jones et al., 2021; Trawver et al., 2020). When students on IHE campuses experience homelessness or housing insecurity, they feel isolated and disconnected from their peers

(Hallett & Frias, 2018). This leads to poorer academic outcomes and lowers IHE persistence rates compared to peers (Hallett & Frias, 2018; Trawver et al., 2020).

The need on Maslow's hierarchy of housing security and safety not being met hold students back from their achievement potential (Maslow, 1943; Maslow, 1954). Students who are homeless or housing insecure are 13 times more likely than students who are housing secure to fail a course, and 11 times more likely to drop out of a course early (Shisler et al., 2023). In addition, students with housing insecurity have an increased likelihood of food insecurity, which creates additional challenges to course success and completion (Hallett & Frias, 2018; Shisler et al., 2023; Trawver et al., 2020).

COVID-19 also allowed for insight into how the housing crisis among IHE students could be addressed. At a North Carolina university, Shisler et al. formed community-based groups to identify housing solutions (2023). This study included stakeholders from both universities and the community. The common goal was to map out affordable and safe opportunities for IHE students. Though the study is still underway, early indicators show that this type of community engagement can be valuable in identifying solutions for IHE students experiencing housing insecurity (Shisler et al., 2023).

Online IHE Student Food and Housing Insecurity

There is a need for increased support for online university students based on studies that show low course completion rates when student food and housing needs are not met (Adewumi et al., 2021; Bird & Morgan, 2003; Leung et al., 2021; Glantsman et al., 2022; Robbins et al., 2022) Off-campus and online students report higher rates of food and housing insecurity than residential students (Adewumi et al., 2021; Owens et al., 2020). Online university students in specific subgroups, including those with disabilities, faced an increased

likelihood compared to peers that they would experience food and housing insecurity during their IHE experiences (Glantsman et al., 2022; Robbins et al., 2022).

Online IHE Students and Food Insecurity

Students not on campus cannot rely on important resources available only to residential students, including food voucher programs to address food insecurity (Hiller et al., 2021; Lederer et al., 2021). Food insecurity is prevalent among online learners responsible for family members and children, as the cost and time of online learning can decrease food stability in the household (Flynn, 2016; Hiller et al., 2021). Adewumi et al.'s 2021 study & Salkin & Ko's 2020 study both posited that more research was needed to truly comprehend the nature of food insecurity for online students, as limited research exists in this area beyond studies surrounding COVID-19 and the impact on online learners.

Online IHE Students and Housing Insecurity

Students from high-risk populations, including those who are homeless, have unsafe or unstable housing, or live at or below the poverty line, are attending online schools in higher numbers due to increased recruitment of students from these historically marginalized communities (Adewumi et al., 2021; Flynn, 2016). While universities are recruiting students to online programs that are experiencing housing and security issues, advising departments are doing little to support online learners regarding food or housing services (Adewumi et al., 2021; Flynn, 2016; Hiller et al., 2021). Students who enter online programs also regularly work full-time or part-time positions while managing families, with online education creating an additional financial strain that impacts online learners and may increase housing instability issues (Flynn, 2016; Hiller et al., 2021; Robbins et al., 2022).

Course Completion Rates for Students with Disabilities at IHE

Students with disabilities have historically been a vulnerable population at institutes of higher education, typically achieving lower course completion rates and poorer scores than their peers without disabilities (Chown et al., 2018; Ryan et al.; 2020). The issue of students with disabilities' lower course completion rates than peers has been studied nationally and internationally with similar trends present across studies (Chown et al., 2018; Potvin et al., 2021; Ryan et al., 2020). It is important to note that early course withdrawals and course failure rates are higher in students with disabilities than those without (Chown et al., 2018; Myhr et al., 2018; Potvin et al., 2021; Ryan et al., 2020).

Course Completion Rates Based on Disability Category

The problem of IHE course completion rates is consistent across disability types with slightly different outcomes. Students with learning disabilities or dyslexia tend to have lower pass rates and lower course completion rates than peers without disabilities (Afeli, 2019; Ellis et al., 2021; Potvin et al., 2021; Ryan et al., 2020). Students with learning disabilities and/or dyslexia tend to score poorly on written work and exams (Afeli, 2019). Even when specific accommodations are provided based on students' learning disabilities, the students are outscored by non-disabled peers (Afeli, 2019; Ellis et al., 2021). This academic support is not fully addressing the student's needs, including their needs for food and housing security, which may allow them to become more motivated as Maslow explained in his hierarchy of needs (Maslow, 1943; Maslow, 1954).

Students with disabilities related to mental health also demonstrate lower course completion and passing rates than their peers without mental health disabilities (Klivlighan et al., 2020). Failure rates and course withdrawal rates for students with mental health

disabilities increase even more when students do not receive mental health support (Nagata et al., 2021). With mental health concerns among IHE students rising, the literature suggests this population must be better served to increase course completion rates and graduation rates (Klivighan et al., 2020; Nagata et al., 2021).

Students with multiple disabilities are found to have the lowest course completion rates and highest course failure rates of students with disabilities (Hoyle et al., 2022). Students with multiple disabilities also are shown to have greater challenges with mental health and social inclusion at universities (Hoyle et al., 2022). Additionally, students with multiple disabilities that include mobility challenges represent another subgroup that historically performs poorer in academic areas than non-disabled peers (Chao, 2017; Hoyle et al., 2022;). Students who need to address multiple disabilities and are experiencing food and housing insecurity will need additional support from the IHE to be successful, as academics will not be a priority until basic needs are met (Maslow, 1943; Maslow, 1954).

Current Approaches For Supporting Online IHE Students with Disabilities

Current approaches for supporting online IHE students with disabilities primarily focus on in-course academic support and accommodations (Fichten et al., 2022; Mamboleo et al., 2020). There are limited studies that approach online learners with disabilities with external support for basic needs fulfillment (Reppond, 2019).

Academic Supports

Several approaches have been studied that have been found to enhance the performance of students with disabilities (Blasey et al., 2022; Fichten et al., 2022; Mamboleo et al., 2020). One of the most important findings across studies is the use of disability-specific accommodations to support students, as opposed to general accommodations (Blasey et al.,

2022; Fichten et al., 2022; Mamboleo et al., 2020). These accommodations may include additional time given for assignments, assistive technology such as voice-to-text or braille, peer tutoring, mobility devices, preferential seating, or other supports based on an individual's needs (Blasey et al., 2022; Fichten et al., 2022; Mamboleo et al., 2020). Colleges that have disability resource programs that provide individualized attention based on the unique needs of students, as opposed to blanket accommodations that are provided to students with a disability regardless of type, have much higher student success rates (Fichten et al., 2022; Mamboleo et al., 2020). Differentiated support that includes accommodations based on an individual's abilities and needs has been shown to increase academic success, including grade point averages and course completion rates (Blasey et al., 2022; Fichten et al., 2022; Mamboleo et al., 2020). When colleges consider individual student needs beyond the classroom, they can address aspects like food and housing insecurity that are currently not being addressed, allowing students to increase their likelihood of positive academic achievement (Maslow, 1943; Maslow, 1954).

Studies focused on online instruction identify the "5 Cs" that increase the success of students with disabilities: connections, climate, control, curriculum, and caring (Goegan & Daniels, 2022; Zdenek, 2020). Connections are the specific way an instructor gets to know and support students as both learners and human beings, thus having a better understanding of both inside and outside of the learning environment needs (Goegan & Daniels, 2022; Zdenek, 2020). The climate is how a course location, virtual or in-person, is structured to allow student accessibility and engagement for all students (Goegan & Daniels, 2022; Zdenek, 2020). Control refers to the student's level of autonomy, choice, and decision-making, which increases the likelihood of student academic success and engagement (Goegan & Daniels,

2022; Zdenek, 2020). The curriculum is the materials and method of sharing information that educators select for the course, allowing for strategic decision-making that will best support diverse students (Goegan & Daniels, 2022; Zdenek, 2020). Caring demonstrates that students are unique and important to the classroom setting demonstrated through the educator's words and actions, thereby creating opportunities for students to share about needs and challenges (Goegan & Daniels, 2022; Zdenek, 2020). Students that engage with other students and faculty are involved in an inclusive environment, believe they have some autonomy in their learning, have a differentiated curriculum, and believe they are valued and perform at higher levels than students who do not perceive these aspects to be present at their university (Goegan & Daniels, 2022).

Support for Basic Needs Fulfillment

Online learning at IHE has steadily increased for the past two decades, with national and international indicators demonstrating that this trend will continue (Casanova & Price, 2018). Creating sustainable online programs at IHE can increase educational access to students with disabilities and other historically marginalized groups (Casanova & Price, 2018). For these programs to be successful, students must have access to programs, and also demonstrate successful completion rates (Casanova & Price, 2018; Runesi et al., 2022). Course and program completion rates for online students with disabilities at IHE must find ways to ensure that student needs are met, both basic needs fulfillment and academic support (Blasey et al., 2022; Zilvinskis, 2022).

The majority of university students with disabilities do not register with disability services offices (Blasey et al., 2022; O'Shea & Kaplan, 2018; Zilvinskis, 2022). Online students are even less likely to disclose disabilities than in-person students are (Melián &

Meneses, 2022). Lack of disability disclosure means that students will not have access to accommodations they may need to be successful in an online university setting, and they do not develop relationships with support services that may also be helpful for struggles with basic needs fulfillment (Blasey et al., 2022; Zilvinskis, 2022). Students report similar beliefs surrounding disclosing disabilities and disclosing food and housing insecurity. In both instances, students feel that they will be stigmatized due to their additional need for support from faculty and administration (Hiller et al., 2021; Melián & Meneses, 2022). This leads to institutions failing to provide student support based on their lack of knowledge surrounding student needs (Lambert & Dryer, 2018; McManus et al., 2017; Melián & Meneses, 2022).

Professors at IHE influence how comfortable students feel in requesting both academic and basic needs support. Despite IHE communicating that inclusive practices and student support are a priority, discrepancies exist between the messaging and actual implementation of student support practices (Valle-Flórez et al., 2021). In a 2021 study by Valle-Flórez et al., professors reported that they felt overall positively about the concept of inclusive practices; however, their support for specific individual practices decreased as the workload aligned with the practice that the professor would be responsible for increased (Valle-Flórez et al., 2021). Valle-Flórez et al. found a disconnect between professors' stated values and their actions supporting inclusive practices, thus recommending additional training for professors to help them understand student needs, including basic needs fulfillment resources available and for academic inclusive practices (2021). Kim et al.'s 2021 research echoed many of these sentiments, with professors expressing support for inclusive practices for online and face-to-face students, but failing to provide additional support for either basic

needs fulfillment or academics. This research team also recommended the importance of professor training for inclusive support of students (Kim et al., 2021).

Online IHE students with disabilities also face logistical challenges in receiving university when facing food or housing insecurity (Hagedorn et al., 2021). Major universities have students from many different states and countries, making it difficult to provide support services for non-campus-based students. (Adewumi et al., 2021; Reppond, 2019). Residential students have access to campus-based food and housing programs that can support students who are food or housing-insecure (Adewumi et al., 2021; Hagedorn et al., 2021; Reppond, 2019). However, students who are unable to access the campus cannot access these resources.

Support issues for students with disabilities at online IHE were highlighted during the early days of the COVID-19 pandemic, as nearly all universities switched to online education (Gin et al., 2021). With nearly all students online only, concerns about both academic and basic needs support were increasingly vocalized, with a limited number of solutions identified (Gin et al., 2021). McManus et al. (2017) found that online students with disabilities' situational challenges, often involving food and housing insecurity, were one of the most common reasons that online students with disabilities failed to complete courses. With more students thrust into the housing and food crisis during the pandemic, many IHE began to recognize shortcomings in the support they provide online students (Gin et al., 2021). Online students with disabilities can access some supports; however, problems exist in their implementation (McManus et al., 2017). Academic coaches and support personnel have been added to universities to provide support that extends beyond the classroom (Borup et al., 2022; Cerasani et al., 2022). These roles are meant to support students experiencing basic needs issues, such as food and housing insecurity (Borup et al., 2022; Cerasani et al., 2022).

Other IHE have implemented trainings for faculty and staff to provide specific information on food and housing insecurity and how to support students if they are experiencing these issues (Burcin et al., 2019; Cerasani et al., 2022; Sackey et al., 2022).

Sackey et al. (2022) suggest that universities should enhance their screening processes to ensure that they are more aware of food and housing insecurity amongst all students, especially those with a risk factor such as a disability. Some universities have started on-campus food pantries and mobile food pantries; however, these have a limited scope and do not serve out-of-state students who attend IHEs online (Reppond, 2019). Research shows that several problems exist with the actual implementation of these services for online students with disabilities, namely that these student supports are dependent on students' awareness of the services and student physical proximity to the school campus, all of which have proven challenging to online students with disabilities (Borup et al., 2022; Cerasani et al., 2022; Lambert & Dryer, 2018). Many students report feeling a stigma associated with their disability and food and housing insecurity, making them unlikely to seek services until they are at a crisis point (Lambert & Dryer, 2018). This increases the risk of course completion failure for online IHE students with disabilities (Borup et al., 2022).

K-12 school districts that have used Maslow's hierarchy of needs as their theory base to address student deficiencies have seen increases in student academic performance, graduation rates, and concurrent declines in the need for discipline (Basford et al., 2021; Griffith & Slade, 2018; Noltemeyer et al., 2021). Understanding and addressing student needs using Maslow's hierarchy of needs as a theoretical base has shown positive potential in the K-12 arena. In Basford et al.'s 2021 study, K-12 students supported by a Maslow-based approach that identified and supported students at each level of Maslow's hierarchy, starting

with basic needs fulfillment produced student success that disrupted the area's school-to-prison pipeline, significantly increasing graduation rates.

In comparison to K-12 education, less research has been conducted at institutes of higher education (IHE) in terms of students with disabilities and their specific needs beyond academics (Borup et al., 2022). The COVID-19 pandemic produced some research in the areas of basic needs fulfillment for online and in-person students at IHE (Russell et al., 2022). Russell et al.'s 2022 research demonstrated that the pandemic heightened what already existed at IHE, considerable challenges for online students in the areas of basic needs fulfillment, the first level of Maslow's hierarchy (Maslow, 1945). Jones & Varga's 2021 study examined another subset of the population that experiences higher than average college dropout or incompletion rates: students who came from foster care or group homes. This study found that strategies based on Maslow's theories to increase basic needs support allowed for greater student success and increased college completion rates (Jones & Varga, 2021). They also found similar challenges that plague researchers exploring the needs and completion rates of online students with disabilities at IHE, the wish to remain anonymous, and the perceived stigma associated with basic needs support (Jones & Varga, 2021).

While the COVID-19 pandemic did prompt additional research into topics of basic needs fulfillment, disability, online education, and student outcomes, there is limited research to show how all of these factors interact. Despite this lack of research, current studies demonstrate that Maslow's theory is as relevant to online IHE students today as it was to K-12 schools when it first was published (Borup et al., 2022; Jones & Varga, 2021; Runesi et al., 2022; Russell et al., 2022)

Summary

Disability education has seen many iterations throughout history, with results ranging from catastrophic to successful (Kauffman et al., 2021; Williamson, 2020). The history of education for individuals with disabilities demonstrates a consistent need for educational leaders to be proactive and constantly examine data to ensure successful educational practices (Kauffman et al., 2021; Williamson, 2020). Food and housing insecurity has also plagued individuals with disabilities throughout history, with inequities in this area continuing to create barriers to academic and financial success (Congressional Hunger Center, 2021). When disability intersects with food and housing insecurity, an individual becomes increasingly more likely to remain in poverty with a limited education, which also increases the likelihood of intergenerational poverty (Jones et al., 2021; Mitra et al., 2013; Reims & Tophoven, 2021; Williams et al., 2022; Wu et al., 2020).

Having a disability, taking college courses online, and having food or housing insecurity are all risk factors for IHE students (Olfert et al., 2021; Schwartz et al., 2019; Williams & Do, 2020). Course completion for students with disabilities is a consistent problem for online students at institutes of higher education (Goodman et al., 2019; Klivlighan et al., 2020; Myhr et al., 2018). Because administrators at IHE desire supportive online atmospheres for students with disabilities, researchers have explored contributing factors to students failing to complete online courses (Jones et al., 2021; Jones & Varga, 2021; Runesi et al., 2022; Russell et al., 2022; Wu et al., 2020). Additionally, researchers have examined the validity of basic needs deficiencies as a contributing factor to student academic challenges at IHE (McManus et al., 2017). Using the theory of Maslow's hierarchy of needs (1943) to frame the possible relationship between course completion and basic needs

fulfillment, the reviewed literature discusses course completion rates for students with disabilities at online universities, the fulfillment of basic needs for students with disabilities, the fulfillment of basic needs for students at IHE, and the fulfillment of basic needs for online students at IHE.

A gap exists in the literature about fulfilling basic needs as it relates specifically to students with disabilities and their online course completion rates at universities. (Noltemeyer et al., 2021; Schlesselman & Psych, 2019). IHE students and their basic needs have been studied primarily at face-to-face universities, but little research exists specifically surrounding the basic needs of online students with disabilities (Noltemeyer et al., 2021; Schlesselman & Psych, 2019). Additionally, some research was completed surrounding increased support for students with disabilities and those who were food and housing insecure occurred during the COVID-19 pandemic, but limited research included online-only IHE students. By examining the fulfillment and deficiencies of the basic needs of online students with disabilities, practitioners can better understand if basic needs deficiencies are a contributing factor to low online IHE course completion rates for students with disabilities (Noltemeyer et al., 2021; Schlesselman & Psych, 2019).

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative, nonexperimental causal-comparative study was to determine if there is a statistically significant difference between the course completion percentages of online students with disabilities who are experiencing deficiencies in basic needs fulfillment and online students with disabilities who have not experienced deficiencies in basic needs fulfillment, specifically in the areas of food and hunger security. The chapter begins by introducing the design of the study, including full definitions of all variables. The research questions and null hypotheses follow. The participants, setting, instrumentation, procedures, and data analysis plans are presented.

Design

Causal-comparative research helps examine potential causes and cause-and-effect relationships, but it is important to remember that results are not correlational (Creswell, 2014). The data collected from this university and the relationships discovered between independent and dependent variables applies only to this data set (Creswell, 2014; Gall et al., 2007). Unfortunately, causal-comparative research can be prone to researcher bias, especially in the subject selection, so it was important to operate with high ethical and moral standards when determining which subjects will be included in the research (Creswell, 2014). None of the groups were manipulated or interfered with because this is a nonexperimental study (Creswell, 2014; Gall et al., 2007). Additionally, this type of research can be skewed due to the attitude of participants, or data may be lost if not collected with a sense of urgency (Creswell, 2014; Gall et al., 2007).

Nonexperimental causal-comparative research examines relationships between independent and dependent variables (Creswell, 2014; Gall et al., 2007). The relationships are suggested and not affirmed, as this is not correlational research (Creswell, 2014). Researchers examine outcomes to determine if an independent variable or variables affect the dependent variable. The methods in this type of study attempt to find cause-effect relationships (Creswell, 2014; Gall et al., 2007). The individual variables were not manipulated to change group membership or skew data (Creswell, 2014; Gall et al., 2007). There must be at least two different groups in a causal-comparative study. Because this type of research is not experimental and no interventions are performed, the independent variables are considered non-manipulated (Creswell, 2014).

There were two independent categorical variables in this study. The first independent variable was food security, with food secure or food insecure as the two levels that assigned to participants who took the survey. The United States Department of Agriculture defines food insecurity as meeting three out of five criteria related to food attainment: the inability to obtain food when it runs out, not being able to afford to eat balanced meals, skipping meals out of necessity, eating less than desired due to necessity, and feeling hungry without the ability to have more food (USDA, 2023). Participants who answered affirmatively to at least three questions were labeled food insecure and participants who answered affirmatively to two or fewer questions were considered food secure (USDA, 2023).

The second independent variable was housing security. The two levels of the housing security variable were housing secure and housing insecure. After a 2019 review of 106 housing security definitions, Cox et al. defined secure housing as having both availability and access to neighborhoods and housing that is safe, adequate, and affordable. The Department

of Health and Human Performance 6-Item Housing Questionnaire was used within the study's survey to determine housing security or insecurity. The question topics include the ability to pay rent, evictions, the ability to pay for electricity and gas or oil, multiple family households, and the use of homeless shelters or abandoned buildings as temporary housing (Lee et al., 2021). Families that experienced more than one risk factor in the past year were considered housing insecure (Lee et al., 2021).

The dependent variable was the percentage of courses completed for each student over one semester. For the purpose of this study, course completion was defined as remaining enrolled in the course until the end of the course and receiving a passing grade of an A, B, or C in the course (Murphy & Stewart, 2017). Students reported on the survey how many courses they took and how many courses they completed, allowing for a percentage of courses completed for each student to be calculated.

Research Question

RQ1: Is there a difference between the percentage of courses completed among online students with disabilities who are experiencing food and/or housing insecurity and those who are not?

Hypotheses

H01: There is no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are *food secure* and those who are not.

H02: There is no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are *housing secur*e and those who are not.

H03: There is no significant interaction between food and housing insecurity and the percentage of course completion rates among institutes of higher education students with disabilities.

Participants and Setting

The participants for this study will be discussed in detail, with descriptions of the specific population surveyed for this study. The sampling technique will be discussed with justification for selection. The size of the sample will be described. Finally, the setting where the research took place will be explained.

Population

Approximately 26% of the United States adult population has one of the 13 disabilities recognized by the ADA (Center for Disease Control and Prevention). The students used for this study were online students with disabilities enrolled in the Fall semester of the 2023-2024 school year. There were 3,031 students enrolled in the online teachers college at this university at the time of the survey. At this university, 89% of students receive some form of financial aid with 33% receiving Pell grants. At this university, 46% of students are from minority backgrounds, with 30% of students representing the first generation to attend IHE.

Participants

A convenience sample of students in a teacher's college at a major university in the Southwest United States of America were used to gather participants that are appropriate for this study and accessible to the researcher (Creswell, 2014; Gall et al., 2007; Rajaretnam, 2016). The sample was selected by the researcher based on proximity to the university and the ability to survey students in the teacher's college due to the researcher's employment at this university. Sample participation was voluntary and anonymous. The study was introduced

through email from the university research center, with a brief explanation of the study provided. The number of participants asked to participate in the survey were 3,031 online students from the undergraduate teacher's college student population. This produced the recommended population of at least 126 students evenly divided among each subgroup recommended by Gall et al., for a two-way ANOVA (2007). This meets the recommended medium-size effect with a statistical power of .7 at the 0.05 level (Gall et al., 2007).

Demographic Information

The sample surveyed consists of 2540 females and 489 females from an online undergraduate teachers college degree program. Out of these participants, 233 completed the survey. The age range for the participants was 41 with the median age being 35. The ethnicity of participants included aligns with the school's demographics and include the following participant breakdown: 47.2% white, 20.5% Hispanic, 15.1% International, 7.9% Asian, 4.6% Multiethnic, 4.2% African-American, .2% Native Hawaiian or Pacific Islander, and 1.9% Unknown. The participants used in the study were those who self-identified as having one of the 13 disabilities recognized by IDEA (National Dissemination Center for Children with Disabilities, 2012).

Table 1

Demographic Information for Sample Group Surveyed

Participant Demographics				
Gender	Female	Male	Unknown/ Non-Binary	Total Students
Students by Gender	2540	489	2	3031
American Indian/ Alaska Native	51	4		55
Asian	63	19		82
Black or African American	110	22		132
Hispanic/Latino	860	170	1	1031
Native Hawaiian/ Pacific Island	7	1		8
Not Available	67	17		84

Two or More Races	99	13		112
White	1283	243	1	1527

Groups

There were four groups used in this study to answer the research question. For groups that had more than 32 students complete the survey, group members were randomly selected by an automatic number generator to allow for equal groups. The four groups include:

Group 1: Online IHE students with disabilities who are food-secure and housing secure. This group includes 32 students.

Group 2: Online IHE students with disabilities who are food insecure and housing secure. This groups includes 32 students.

Group 3: Online IHE students with disabilities who are food secure and housing insecure. This groups includes 32 students.

Group 4: Online IHE students with disabilities who are food insecure and housing insecure. This groups includes 32 students.

Table 2 shows the number of students by disability category present in each group. Students may report having more than one disability.

Table 2

Distribution of Disability Categories by Group

Participant Demographics				
Disability Category	Food Stability, Housing Stability	Food Instability, Housing Stability	Food Stability, Housing Instability	Food Instability, Housing Instability
Autism	4	6	2	2
Deaf-Blindness	0	0	0	0
Emotional Disturbance	29	29	20	21
Hearing Impairment, Including Deafness	0	2	0	1
Intellectual Disability	0	0	4	0
Multiple Disabilities	3	4	0	1
Other	4	4	7	5
Orthopedic Impairment	0	1	0	2

Other Health Impairment	6	3	3	3
Specific Learning Disability	5	8	2	6

Setting

The survey was provided to online students in the Teachers College at a large college in the southwest United States in Fall 2023, at the conclusion of the semester. Courses for this program can be 7.5 or 15 weeks long. Degrees in the Teachers College program may be completed in person or online, however, the survey was only provided to online students. Online students may be nationally (American) or internationally located because the program is fully online. The program is asynchronous.

Instrumentation

There were several instruments used to obtain data for this study. Each will be described including its origin and purpose. The survey data collected included information regarding the presence or absence of a disability, percentage of course completion rates, food security or insecurity, and housing security or insecurity. Demographic information collection procedures will be discussed, including the process for self-identification of a disability. The procedure used to determine course completion rates will be described. The U.S. Household Food Security Survey Module: Six Item Short Form was used to collect data on food security or insecurity (Foster et al., 2019). Housing security or insecurity was measured using the Fragile Families and Childhood Wellbeing 6-Item Housing Questionnaire (Lee et al., 2021).

All of this information was collected in a single online survey using the Qualtrics survey collection tool.

Demographic Information

The researcher developed questions to gather demographic information for the students participating in the study. In the demographic data section of the survey, students will self-identify their gender and ethnicity. The gender and ethnicity survey choices were developed using the choices provided to students at the university used for research in the study upon entry into the university.

Self-Identification of A Disability

In the second part of the demographic section of the survey, students will be asked to self-identify if they have a disability or do not have a disability. Self-identification was used instead of school identification due to FERPA laws, as well as the fact that many students with disabilities do not inform the school of their disability status (Raj, 2021). This section of the survey included a list of the 13 categories of disability covered by IDEA (Appendix A): Autism Spectrum Disorder, Deaf-Blindness, Deafness, Emotional Disturbance, Hearing Impairment, Intellectual Disability, Multiple Disabilities, Orthopedic Impairment, Other Health Impairment, Specific Learning Disability, Speech or Language Impairment, Traumatic Brain Injury, and Visual Impairment, including Blindness (Raj, 2021). In addition, a link was provided to the IDEA homepage with a definition of disability for more information to help students correctly determine their disability status. Students who did not self-identify as having a disability were not used in the study.

Percentage of Courses Completed

To collect course completion data for the Fall 2023 semester, students reported the total amount of courses they took, the total amount of courses they remained enrolled in for the entire semester, and the total amount of courses they passed (passing criteria was an A, B, or C grade). Students were assigned a percentage based on the number of courses completed and passed. For example, a student who enrolled in four classes, withdrew from one, failed one, and remained enrolled in the other 2 with a final score of a C or higher, received a score of 50% for their percentage of courses completed. A student who enrolled in four classes, remained enrolled in all four classes, and scored a C or higher in three of the four classes was given a 75% for their course completion rate. A student who enrolled in three classes and did not remain enrolled in any of the courses to the end of the semester received a 0% course completion rate. Students who do not remain enrolled in any classes will still be enrolled at the IHE through the end of the session, so surveys were sent out the last week of the session to combat any issues of missing students who withdrew from all courses. Questions were developed for the survey by the researcher to collect this information. The complete survey as it appears in Qualtrics can be found in Appendix B.

U.S. Household Food Security Survey Module: Six-Item Short Form

The purpose of the United States Household Food Security Module (USFSSM) is to collect data regarding food insecurity for low-income households. This was initially used in the mid-1990s by the United States Department of Agriculture to identify food insecurity trends across America (Foster et al., 2019). The USFFSSM is typically considered the gold standard in the United States for assessing food insecurity (Foster et al., 2019). This survey has been used in many studies to determine the presence or absence of food security in

different geographical locations (Foster et al., 2019; Giroux et al., 2022; Hromi-Fiedler et al., 2009; Kent et al., 2022; Matias et al., 2020). The USFSSM was evaluated for validity, sensitivity, and predictive value. Sensitivity ratings were between 92.3% and 93.0% with specificity ratings between 93.4% and 97.3% (Urke et al., 2014). The predictive value for the USFSSM was (+/2) (Urke et al., 2014). The item score correlations ranged from .52 to .79 with Cronbach's alpha of .87 (Blumberg et al., 1999; Gulliford et al., 2004). The standard error for individual questions ranged from -2.027 (0.063 to 2.251 (0.116) dependent on the question asked (Blumberg et al., 1999; Gulliford et al., 2004).

Each question on the instrument provided information about the availability of food over the past 12-month time period. There were six questions, each using a three-point Likert scale, with the descriptors: "Often true," "Sometimes true," or "Never true." There is also an option for Don't Know (DK) or refused to respond to each question. Participants answered questions about their household over the last 12 months. Each response of "Often true" or "Sometimes true" was assigned a score of one point. Each response of "Never true," "Don't Know," or "Refused to Respond" was assigned a score of zero points. Total responses of zero or one point was assigned the status of "food secure." Any score of two to six points will be assigned the status of "food insecure."

The USFSSM can be found in Appendix C. The USFSSM is public domain, therefore permission was not required to use this survey. This portion of the survey takes approximately 5 minutes to complete. Directions for using and scoring the USFSSM is included in Appendix C. The scores were calculated by the researchers using the USFSSM guidelines.

Fragile Families and Child Wellbeing Housing Stability Questionnaire

The Department of Health and Human Performance 6-Item Housing Questionnaire was developed by researchers at Princeton and Columbia University to collect data on housing insecurity and other family factors as a part of the Fragile Families and Child Wellbeing (FFCW) research that took place between 1998 and 2000 (Lee et al., 2021). This set of questionnaires and corresponding data have been used in multiple studies to understand various family dynamics, security, and stability (James et al., 2021a; MacKenzie et al., 2011; Su & Dwyer, 2020; Xu et al., 2016). The questionnaire has a 95% confidence interval (Lee et al., 2021; Su & Dwyer, 2020). The Cronbach's alpha is .79 and the standard deviation is one (Su & Dwyer, 2020). The housing security section of the FFCW can be found in Appendix D along with permission to use the questionnaire.

One portion of the FFCW includes questions about housing stability. Six questions were asked as part of this questionnaire to determine housing security during the survey participant's previous 12-month time frame. The question topics include the ability to pay rent, evictions, the ability to pay for electricity and gas or oil, multiple family households, and the use of homeless shelters or abandoned buildings as temporary housing (Lee et al., 2021). The answer choices for each question are: "yes," "no," or "I don't know"/ refusal to answer (Lee et al., 2021). Zero points were assigned for responses of "no" or "I don't know"/ refusal to answer. One point was assigned for affirmative answers to each question. There was a total of six possible points. Families that score zero points were classified as having "housing stability/ security" while families that score one or more points were classified as having "housing instability/ insecurity."

The FFCW can be found in Appendix D. This survey is in the public domain, thus, permission to use it is not required. This portion of the survey takes approximately 5 minutes to complete. Directions for using and scoring the FFCW is included in Appendix D. The scores were calculated by the researcher using the FFCW guidelines.

Procedures

Before any data collection occurred, the researcher received approval from the Internal Review Board (IRB). This study qualified as exempt. See Appendix E for IRB exemption approval. The researcher obtained the necessary authorization to distribute the survey to students in the teachers' college program at the university used for the research. Permission was collected from the college dean and program coordinators to ensure study feasibility. Permission for the study can be found in Appendix F. The survey was developed in Qualtrics to ensure high-quality data was captured in a format approved by Liberty University. The first part of the survey included self-reported student demographic information. Part two included questions from USFSSM regarding food security. Part three included the questions from FFCW related to housing stability. Part four included course completion rate questions. Both associations' surveys were allowed to be used as a part of the public domain.

A recruitment letter (Appendix G) and consent form (Appendix H) was sent to online students in the teachers college with the online link to the survey. Additionally, the researcher requested that professors include a link to the survey in online announcements to maximize participation. Because students in the program are 18 years or older, parental consent is not necessary. Students received the link to the Qualtrics survey with the recruitment letter and consent form. When students entered the survey, the first page was the consent form. This was followed by instructions for completing the survey, demographic information, the

USFSSM, and the FFCW questions. The survey took approximately 15 minutes to complete.

When surveys were completed, students were assigned to one of four groups based on their responses. Students who did not self-identify as having a disability were not assigned to a group and were removed from the study because the study is focused on online IHE students with disabilities only. Group one included students who have not experienced food or housing insecurity. Group two included students who have experienced food insecurity only. Group three included students who have experienced housing insecurity only. Group four included students who have experienced both food and housing insecurity.

The information for all participants was protected throughout the research study. Only the researcher had access to records. Data was stored securely on a password-protected computer and in a password-protected external hard drive. The external hard drive will be stored in a locked cabinet at the researcher's residence when not in use. Data will be kept for five years in these secure locations upon completion of the research project.

Data Analysis

A two-way ANOVA test was used to analyze data from this study. A two-way ANOVA is appropriate for use in causal-comparative studies that have two categorical independent variables and a dependent variable measured using intervals (Creswell, 2014; Gall et al., 2007; Rajaretnam, 2016). The two-way ANOVA is preferable to the two-sample t-test, as it has a lesser chance of producing type 1 errors that could corrupt the data (Creswell, 2014; Gall et al., 2007). The two-way ANOVA can measure both the interaction between the factors and the factors independently. Comparing the percentages of course completion for online students with disabilities who may or may not be experiencing food and/ or housing insecurity was done using a two-way ANOVA, as this showed the presence or absence of

statistically significant differences between student groups (Creswell, 2014; Gall et al., 2007; Rajaretnam, 2016). Data screening was completed visually to ensure that there were no missing or inaccurate entries. The data was screened to identify which students received the label of neither food nor housing insecure, food insecure, housing insecure, or both food and housing insecure.

Several assumptions must be met when using the two-way ANOVA. The dependent variable must be measured using an interval or ratio. The dependent variable, course completion rates, was a continuous variable measured by the ratio of courses completed to courses registered for. The independent variables of food and housing insecurity or security were categorical in nature, with two categories present for each independent variable. The next assumption is that there are no extreme outliers. The assumption of no significant outliers was checked by creating boxplots to determine if there were any extreme outliers in the data set (Gall et al., 2007). Then, the assumption of normal distribution was tested using Shapiro-Wilk test. This test was appropriate for group sizes below 50 (Gall et al., 2007). Finally, Levene's Test of Equality of Error Variances was used to test the assumption of variance (Gall et al., 2007; Rajaretnam, 2016). A 95% confidence level was used to determine the statistical significance as this is the confidence level commonly used for educational research (Creswell, 2014; Gall et al., 2007).

For questions where the null was rejected, a pos hoc analysis was not required, as there were only two options in each group. (Gall et al., 2007). Partial eta squared was used in order to determine the effect size (Gall et al., 2007). The effect size determination was based on partial eta squared statistic thresholds. A small effect size is found when $\eta 2$ is less than .010, a medium effect size is found when $\eta 2$ is between .022 and .059, a large effect size is

when η2 is between .083 and .183, and a very large effect size is when η2 is greater than .168 (Gall et al., 2007; Rajaretnam, 2016).

CHAPTER FOUR: FINDINGS

Overview

This chapter will provide an overview of the findings for the interactions between food security, housing security, and course completion rates for online IHE students who have disabilities. These students were asked to self-report their course completion rates, level of food security, and level of housing security. The students were placed into four groups for analysis. These groups included students who were 1) food secure and housing secure, 2) food insecure and housing secure, 3) food secure and housing insecure, and 4) food insecure and housing insecure. This chapter will describe the data collected for the four student groups. This includes the research question, null hypothesis, and descriptive statistics. Additionally, the acceptance or rejection of each null hypothesis will be stated and justified.

Research Question

RQ: Is there a difference between the percentage of courses completed among online students with disabilities who are experiencing food and/or housing insecurity and those who are not?

Null Hypotheses

$H_0$1: There is no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are *food secure* and those who are not.

$H_0$2: There is no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are *housing secur*e and those who are not.

$H_0$3: There is no significant interaction between food and housing insecurity and the percentage of course completion rates among institutes of higher education students with disabilities.

Descriptive Statistics

For each group, descriptive statistics were obtained on the dependent variable (course completion rates). Descriptive statistics are found in Table 3. The student mean scores are between 0 and 100. The number of classes they completed successfully is measured against the number of courses the student registered for to obtain a percentage between 0 and 100%.

Table 3

Descriptive Statistics

Dependent Variable: Course Completion Rates

Group	*n*	*Course Completion Rate Mean*	*SD*	*Lower Bound*	*Upper Bound*
1 - Food & Housing Secure	32	95.00	3.847	87.386	100.00
2 - Food Secure, Housing Insecure	32	84.219	3.847	76.604	91.833

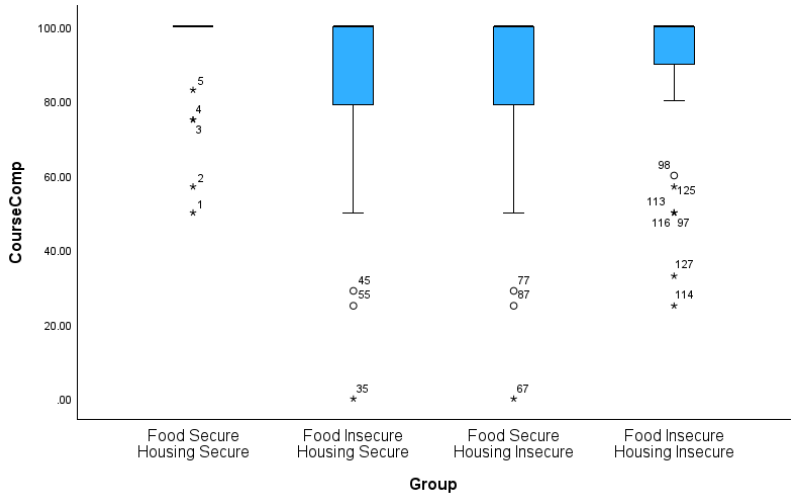
3 - Food Insecure, Housing Secure	32	90.563	3.847	82.948	98.177
4 - Food Insecure, Housing Insecure	32	87.656	3.847	80.042	95.271

Data Screening

Data screening was conducted on each group's dependent variable. The researchers scanned for data entry errors and inconsistencies. No data errors or inconsistencies were identified. Box and whiskers plots were used to detect outliers in the dependent variable. Six data points were denoted with asterisks on the box plot (data points 1, 2, 3, 4, 5, 35, 67, 95, 127, and 114). The researchers converted the data point to a z-score, which fell within standard deviations of the sample mean (Warner, 2013, p. 153). Thus, the data points were not considered extreme scores and were maintained in the data set. See Figure 1 for box and whisker plots.

Figure 1

Box and whisker plots (dependent).



Assumption Tests

A two-way Analysis of Variance (ANOVA) was used to test the null hypothesis. The two-way ANOVA requires assumptions to be met throughout the data analysis process. It is required to have a continuous dependent variable, while independent variables must be categorical. The independence of observation assumption must be met, and the data must lack significant outliers. Additionally, normal distribution was tested using the Shapiro-Wilk test, while homogeneity of variances was tested using Levene's test (Gall et al., 2007). These assumptions were met to ensure that the two-way ANOVA produced accurate and reliable data.

Assumption: The Dependent Variable is Continuous

Dependent variables used in two-way ANOVAs must be continuous (Gall et al., 2007). The dependent variable for this study, course completion rate is measured at the continuous level. Students can score between 0 and 100 when the number of classes they completed successfully is measured against the number of courses the student registered for. Using this ratio of courses completed to courses registered for allows for a percentage score between 0 and one hundred.

Assumption: Independent Variables Must be Categorical

Each of the independent variables used in a two-way ANOVA must be categorical (Gall et al., 2007). The first independent variable, food status, has two categories: food secure or food insecure. The second independent variable for this study is housing status. The categories for housing status are housing secure or housing insecure.

Assumption: Independence of Observations

The independence of observations assumption requires there to be no relationship between the members of each group (Gall et al., 2007). There are 4 groups for this study. This includes individuals who are food secure and housing secure, individuals who are food insecure and housing secure, individuals who are food secure and housing insecure, and individuals who are both food and housing insecure. There is no overlap between these groups, meaning no individual's data is used in more than one group.

Assumption: No Significant Outliers

There should be no significant outliers in the data (Gall et al., 2007). This is necessary to assure that any outliers do not skew the two-way ANOVA data. Skewed data from outliers makes the two-way ANOVA results less reliable. The data from each group that do not follow the typical pattern of data were removed from the data set. The groups were tested tor this assumption using the creation of boxplots from the data.

Assumption: Normal Distribution

Normality was examined using a Shapiro-Wilk test. Shapiro-Wilk was used because the sample size was less than 50. The significance level for the Shapiro-Wilk test was <.001, meaning that the data was not normally distributed. According to Warner (2013), when

violations of normality occur using ANOVA, the test is robust as long as the other assumptions are met.

Table 4

Shapiro-Wilk test

		Shapiro-Wilk		
Groups				
		Statistic	*df*	Sig.
Food Secure	1 - Housing secure	.457	32	<.001
	2 - Housing insecure	.446	32	<.001
Housing Secure	3 - Food Insecure	.656	32	<.001
	4 - Food Secure	.588	32	<.001

Assumption: Homogeneity of Variances

When combining any of the groups of the independent variables, it is required to have homogeneity of variances (Gall et al., 2007). This assumption was tested using Levene's test for homogeneity of variances. No violation was found where $p = .515$. The assumption of homogeneity of variance was met.

Results

$H_0$1: There is no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are *food secure* and those who are not.

$H_0$2: There is no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are *housing secur*e and those who are not.

$H_0$3: There is no significant interaction between food and housing insecurity and the percentage of course completion rates among institutes of higher education students with disabilities.

A 95% confidence level was used to determine the statistical significance as this is the confidence level commonly used for educational research following guidelines in educational research (Creswell, 2014; Gall et al., 2007). To determine effect size, partial eta squared was used (Gall et al., 2007). The effect size determination was based on partial eta squared statistic thresholds. A small effect size is found when $\eta 2$ is less than .010, a medium effect size is found when $\eta 2$ is between .022 and .059, a large effect size is when $\eta 2$ is between .083 and .183, and a very large effect size is when $\eta 2$ is greater than .168 (Gall et al., 2007). Table 5 shows the tests of between-subject effects.

Table 5

Tests of Between Subject Effects

Group	*Type III Sum of Squares*	*df*	Mean Square	*F*	*Sig.*	*Partial Eta Squared*
Food Secure	8.000	1	8.000	.017	.897	.000
Housing Secure	1498.871	1	149.781	3.165	.078	.025
Food Secure* Housing Secure	496.125	1	496.125	1.048	.308	.008

$H_0$1 Results

The first hypothesis stated that there is no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are *food secure* and those who are not. The researcher failed to reject the null hypothesis at the 95% confidence level where $F(1) = .017$, $p = .897$. Partial eta square equaled $\eta^2 < .001$). There was no measurable effect. There was not a statistical difference in course completion rates among online IHE students who are food secure and housing secure (M =95.00, SD = 3.85) and those who are food insecure and housing secure (M = 90.56, SD = 3.85). This null hypothesis was not rejected because the result of the two-way ANOVA was not significant for food security, with a n2 value of .001. This indicates no effect when interpreted in terms of Cohen's *d* (Warner, 2013). Posthoc testing was not completed as there are fewer than three categories, either food secure or food insecure.

$H_0$2 Results

The second hypothesis stated that there is no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are *housing secur*e and those who are not. The researcher failed to reject the null hypothesis at the 95% confidence level where $F(1) = 3.165$, $p = .078$. Partial eta square equaled ($\eta^2 = .025$). There was no statistical difference in course completion rates among online IHE students who are food secure and housing secure (M =95.00, SD = 3.85) and those who are food secure and housing insecure (M = 84.22, SD = 3.85). Posthoc testing was not completed, as there are only two labels in this category, housing secure or insecure.

$H_0$3 Results

The third hypothesis stated that there is no significant interaction between students who are both food insecure and housing insecure and those who are food secure and housing secure in their percentage of course completion rates among institutes of higher education students with disabilities. The researcher failed to reject the null hypothesis at the 95% confidence level where $F(1) = 1.408$, p =.308. Partial eta square equaled ($\eta^2 = .008$). There was no statistical difference in course completion rates among online IHE students who are housing secure and food secure (M = 95.00, SD = 3.85) and those who are housing insecure and food insecure (M = 87.66, SD = 3.85). Posthoc testing was not completed, as there are only 2 labels in each category, housing secure or insecure and food insecure or secure.

The findings indicate that for online IHE students with disabilities, having food or housing insecurity independently or together does not have a significant effect on course completion rates.

CHAPTER FIVE: CONCLUSIONS

Overview

This chapter summarizes research that compared the differences in course completion rates for online IHE students with disabilities based on their food and housing security status. This chapter provides a discussion of the research question, analysis results, and how the results relate to the literature review. In addition, study implications, limitations, and recommendations for future research will be discussed.

Discussion

The purpose of this nonexperimental quantitative, causal-comparative study was to evaluate the relationship between course completion for online students with disabilities at IHE and basic needs fulfillment in food and housing security. While disability is often blamed as the sole factor for student challenges, research supports the need to view students more holistically (Birdwell & Bailey, 2022; Meeks et al., 2020; Stott & Morrell, 2021; Williams et al., 2022). This study intends to add to existing research surrounding the impact of food and housing insecurity on course completion rates for online IHE students with disabilities (Adewumi et al., 2021; Athens, 2018; Broton et al., 2022; Carroll et al., 2020; Ellis et al., 2021; Hallett & Frias, 2018; Jones et al., 2021; McManus et al., 2017; Nazmi et al., 2018; Olfert et al., 2021; Speirs et al., 2023; Rosenbaum, 2018; Trawver et al., 2020) and use Abraham Maslow's theory of human motivation to describe potential complications that arise for students when food or housing needs are not met.

Food Insecurity and Course Completion Rates

The first hypothesis examined if there was a difference in the percentage of course completion rates among online institutes of higher education students with disabilities who

are food secure and those who are not. There was not a statistical difference in course completion rates among online IHE students who are food secure and those who are not. These findings contradict current literature demonstrating the negative impact food insecurity has on course completion rates (Hagedorn et al., 2021; Hallett & Frias, 2018). Additionally, this finding is not consistent with Abraham Maslow's (1943; 1951) theory of motivation. This theory describes the necessity of basic needs, including hunger, being met in order for individuals to achieve higher levels of success, such as educational goals. Consistency in food security is viewed as paramount to reaching individual educational goals. The findings in this study, unlike others in the field, did not show a statistically significant impact of food security on student success, specifically regarding students at online IHE with disabilities (Chown et al., 2018; Ryan et al.; 2020). Students with disabilities are more likely to face food insecurity than peers without disabilities, therefore it should still be considered an area of support needed for online IHE students with disabilities (Cotti et al., 2018; Schwartz et al., 2019; Williams & Do, 2020; Waters-Bailey et al., 2019). In addition, Jones et al. (2021) and Wu et al. (2020) posited that online students are at risk for food insecurity, these findings support the need for online IHE to consider food security a priority for students with disabilities.

Housing Insecurity and Course Completion Rates

The second hypothesis stated there was no difference in the percentage of course completion rates among online institutes of higher education students with disabilities who are housing secure and those who are not. The findings in this study demonstrate that housing security is not a significant predictor of student successful course completion rates for online IHE students with disabilities. These results contradict literature surrounding students facing decreased success due to housing insecurity (Hallett & Frias, 2018; Schisler et al., 2023;

Trawver et al., 2020). Abraham Maslow's (1943; 1951) theory of motivation includes housing as one of the basic needs that must be met in order for students to successfully achieve higher levels of success including educational outcomes. This study did not result in a significant difference in course completion rates among online IHE students with disabilities who are housing secure and those who are housing insecure. Other studies have had different outcomes. Martinez et al. (2021) found that student academic success often hinged on the ability to afford housing. When students cannot afford housing, Maslow (1943; 1951), theorized that academic success, course completion, and the development of higher academic goals suffers. While this study did not find housing security as an indicator of student success for online IHE students with disabilities, other studies reviewed, (Hallett & Frias, 2018; Ofert et al., 2023; Schisler et al., 2023; Trawver et al., 2020) posit that housing insecurity is a common indicator that students will face negative educational outcomes at levels higher than their peers.

Food Insecurity and Housing Insecurity and Course Completion Rates

The final hypothesis stated that there is no significant interaction between food and housing insecurity and the percentage of course completion rates among institutes of higher education students with disabilities. The researcher failed to reject the null hypothesis. There was not a statistical difference in course completion rates among online IHE students who are both housing secure and food secure and those who are both housing insecure and food insecure. These results contradict Maslow's theory that includes food and housing as basic needs that must be met in order for higher levels of achievement to be attained (1943; 1951). Additionally, these results contradict multiple studies that demonstrate connections between

food and housing insecurity and academic challenges (Jones et al., 2021; Mitra et al., 2013; Reims & Tophoven, 2021; Wu et al., 2020).

Online IHE students with disabilities that face singular challenges, such as only housing insecurity or only food insecurity were not shown to have lower success rates than students that faced both food and housing insecurity or students with both food and housing security. This phenomena was not anticipated based on the literature review, however, there is research that offers insight into potential causes for these results. Studies surrounding the percentage of students who had faced food insecurity between 41.4 and 53% (Nazmi et al., 2018; Ofert et al., 2019). The national average for food insecurity is 12.8% (USDA, 2022). Housing insecurity at the nation level is between 10 and 15% (Broton et al., 2022; Padaguan, 2021), while more than 31% of IHE students are food insecure or at high risk for food insecurity (Oh et al., 2022; Payne-Sturges et al., 2018). For many students, their time at an IHE will be the first where they face food or housing insecurity. Students who are facing either food insecurity or housing insecurity, but not both, are likely to be facing acute poverty instead of chronic poverty (Super, 2020). This acute poverty may result in students collaborating with other students and faculty, due to the higher levels of stress caused than chronic poverty (Fernandes, 2018; Super, 2020). These circumstances are unusual to those facing acute poverty, thus having a significant impact on mental health, which in turn can effect how students seek out help and support (Thomson et al., 2022).

Implications

This study provides greater insight into the challenges faced by online students with disabilities outside of the classroom. Understanding how basic needs impact student achievement is a critical aspect of leaders at IHE. Online education has grown tremendously

in recent years, however, supports for off-campus students do not always grow at the same rates as on-campus students, and are consistently less effective than those for on-campus students (Adewumi et al., 2021; Owens et al., 2020).

There are unique challenges faced by online students with disabilities, and these are unfortunately often not met as IHE tend to focus on academic needs rather than recognizing the holistic needs of the students (Lambert & Dryer, 2018; McManus et al., 2017; Melián & Meneses, 2022). IHE leaders may not be aware of the external factors impacting students with disabilities at higher rates than their peers, and a lack of significant impact on course completion rates could keep IHE from further studying this issue.

The graduation rates of students with disabilities in high schools continues to rise, while the graduation rates for students with disabilities at IHE do not (Glantsman et al.; 2022 Leung et al., 2021; Waters-Bailey et al., 2019; Weissman, 2020; Salkin & Ko, 2020). Food and housing stability disproportionately impact people with disabilities, and these two areas have been shown repeatedly to impact students negatively in the area of academic success (Jones et al., 2021; Schwartz et al., 2022; Williams & Do, 2020). However, this study did not find a significant difference between IHE students with disabilities who are facing food and/or housing insecurity and those who are not. It is critical that more studies are completed that support online learners with disabilities in order to keep searching for root causes for lower graduation rates for students with disabilities at IHE than the general population (Glantsman et al.; 2022 Leung et al., 2021; Waters-Bailey et al., 2019; Weissman, 2020; Salkin & Ko, 2020). More learning is necessary to determine if the results from this study are applicable at other IHE, or if the students in this study are receiving supports that allow them to succeed

despite challenges. Additionally, the issue of acute poverty for students who are facing poverty for the first time should be explored.

Limitations

This study examined the course completions rates for online IHE students with disabilities based on their food and housing security status. The results of this study may not correlate to similar studies at other locations. This was a voluntary survey that was given to students over a three week time period at the end of the semester. This was necessary due to the need for surveying to take place at the end of the semester, however, it may limit the type of students who are taking the survey to those who check and respond to emails over school breaks. This study design does not allow for correlational claims, instead examining possible relationships between different groups of students based on their food and housing status. The design also grouped students based on this criteria, and therefore was not completely random grouping.

In this survey, students were asked to self-report both their disability type and their course completion rates, which could allow for inaccuracy of data. Students also self-reported their levels of food and housing security using tools that have been previously used in research on these topics. However, this self-reporting also allows for somewhat subjective self-reporting that could skew data. Additionally, this survey was optional for students to complete, therefore it may not reflect a complete picture of all students in the IHE program. This study was intentionally limited to undergraduate online students to maintain focus on specific students within a large university. Data from online graduate students with disabilities was not collected. Additionally, the students surveyed were all from one college of education, further limiting the number of participants involved in the study. The study included primarily

female students, and students who identified as either white or Hispanic/Latino. This potentially skewed data based on the high population of these groups. Additionally, emotional disturbance was represented at much higher rates than other disabilities in this study which could alter the outcomes. This study is a snapshot of one particular college within an IHE, so it cannot be generalized at this point, however it does offer important insight into a potential national issue impacting online IHE students with disabilities.

Recommendations for Future Research

Future research into several topics would be beneficial for growth by IHE in supporting online students with disabilities through food and housing challenges. Additionally, research into the student's lives and key causes for food and housing challenges would also contribute to understanding and developing solutions that support students. Additionally:

1) It would be beneficial for a future study to focus on students with disabilities who participate in online courses to share reasons for course completion or failure to complete in the students' own words. This could be accomplished through qualitative research or a more detailed survey.

2) It is necessary to conduct further research into the opportunities available to students who are online learners in the area of food and housing stability. Current comparisons of opportunities provided to campus based students show inequity of support for online learners. Identifying the reasons for this inequity, and how schools have overcome this inequity would provide valuable information for IHE.

3) Research into the relationships between online instructors and their students with disabilities may provide interesting information regarding the amount and type of support

available through online learning professors. Understanding what online instructors know and do not know in terms of how to provide support for online learners facing food or housing crisis would help to determine what trainings and support may be needed for instructors and advisors who regularly communicate with students.

4) The identification of universities that are successfully supporting their online learners with disabilities would allow for dissemination of information and materials that would allow for increased support for instructors, advisors, and students who are unfamiliar with how to handle food and housing crisis. These IHE can act as model universities for other IHE that wish to improve their practices or have discovered data demonstrating the need for increased student support.

5) The issue of students facing food or housing insecurity completing courses at a lower rate than those experiencing both food and housing insecurity should be examined through further research to determine if outcomes are limited to this study, or are more widespread. Additionally, this will allow for insight into the concepts of acute poverty when compared to chronic poverty as it relates to student outcomes.

REFERENCES

Abbas, J. (2020). Service quality in higher education institutions: qualitative evidence from the students' perspectives using Maslow hierarchy of needs. *International Journal of Quality and Service Sciences, 12*(3), 371-384. https://doi.org/10.1108/ijqss-02-2020-0016

Adewumi, O. E., Knol, L. L., Hagedorn, R. L., & Olfert, M. D. (2021). P21 College students attending online programs have lower rates of food insecurity than residential students. *Journal of Nutrition Education and Behavior, 53*(7), S33. https://doi.org/10.1016/j.jneb.2021.04.413

Afeli, S. A. (2019). Academic accommodation strategies for pharmacy students with learning disabilities: What else can be done? *Currents in Pharmacy Teaching and Learning, 11*(8), 751-756. https://doi.org/10.1016/j.cptl.2019.04.001

Aitken, Z., Baker, E., Badland, H., Mason, K., Bentley, R., Beer, A., & Kavanagh, A. M. (2019). Precariously placed: Housing affordability, quality and satisfaction of Australians with disabilities. *Disability & Society, 34*(1), 121-142. https://doi.org/10.1080/09687599.2018.1521333

Akoto, Y., Nketsia, W., Opoku, M. P., & Opoku, E. K. (2023). Factors motivating students with disabilities to access and participate in university education in Ghana. *Higher Education Research & Development, 42*(2), 261-274. https://doi.org/10.1080/07294360.2022.2052818

Arizona State University. (n.d.). *Facts and figures*. Facts and figures | Arizona State University. Retrieved November 15, 2022, from https://www.asu.edu/about/facts-and-figures

Athens, W. (2018). Perceptions of the persistent: Engagement and learning community in underrepresented populations. *Online Learning, 22*(2). https://doi.org/10.24059/olj.v22i2.1368

Bagenstos, S. R. (2021). *Disability rights law: Cases and materials*. Foundation Press.

Basford, L., Lewis, J., & Trout, M. (2021). It can be done: How one charter school combats the school-to-prison pipeline. *The Urban Review, 53*(3), 540-562. https://doi.org/10.1007/s11256-020-00583-x

Beck & Twiss, P. C. (2018). *The Homelessness Industry: A Critique of US Social Policy*. Lynne Rienner Publishers.

Blasey, Wang, C., & Blasey, R. (2022). Accommodation use and academic outcomes for college students with disabilities. *Psychological Reports*, 332941221078011–332941221078011. https://doi.org/10.1177/00332941221078011

Berg & Gibson, A. (2022). Why the world should not follow the failed united states model of fighting domestic hunger. *International Journal of Environmental Research and Public Health*, *19*(2), 814. https://doi.org/10.3390/ijerph19020814

Bergdahl, Steele, T., & Twill, S. (2022). Time to change the usual response to college students' food insecurity. *Journal of Poverty, ahead-of-print*(ahead-of-print), 1–19. https://doi.org/10.1080/10875549.2022.2128980

Birdwell & Bailey, K. (2022). When the syllabus is ableist: Understanding how class policies fail disabled students. *Teaching English in the Two-Year College*, *49*(3), 220–237.

Blumberg, S. J., Bialastosky, K., Hamilton, W. L., & Briefel, R. R. (1999). *The effectiveness of a short form of the household food security scale.* American Journal of Public Health. https://ajph.aphapublications.org/doi/10.2105/AJPH.89.8.1231

Borup, J., Graham, C. R., West, R. E., Archambault, L., & Spring, K. J. (2022). Academic communities of engagement: An expansive lens for examining support structures in blended

and online learning. *Educational Technology Research and Development*, *68*(2), 807–832. https://doi.org/10.1007/s11423-020-09744-x

Brown & Mangan, K. (2020). What college students need now: They're more vulnerable than ever, physically and financially. *The Chronicle of Higher Education*. Burcin, Armstrong, S. N., Early, J. O., & Godwin, H. (2019). Optimizing college health promotion in the digital age: Comparing perceived well-being, health behaviors, health education needs and preferences between college students enrolled in fully online versus campus-based programs. *Health Promotion Perspectives*, *9*(4), 270–278. https://doi.org/10.15171/hpp.2019.37

Brownell, S. E., & Cooper, K. M. (2021). COVID-19 and undergraduates with disabilities: Challenges resulting from the rapid transition to online course delivery for students with disabilities in undergraduate STEM at large-enrollment institutions. *CBE Life Sciences Education*, *20*(3), ar36–ar36. https://doi.org/10.1187/cbe.21-02-0028

Broton, K.M., Miller, G. N. S., & Goldrick-Rab, S. (2020). College on the margins: Higher education professionals' perspectives on campus basic needs insecurity. *Teachers IHE Record (1970)*, *122*(3), 1–32. https://doi.org/10.1177/016146812012200307

Broton, K.M., Mohebali, M., & Goldrick-Rab, S. (2022). Deconstructing assumptions about IHE students with basic needs insecurity: Insights from a meal voucher program. *Journal of IHE Student Development*, *63*(2), 229–234. https://doi.org/10.1353/csd.2022.0018

Burris, M., Valliant, J. C. D., Babb, A. M., Stafford, P., Fobi, D., Czebotar, K., & Knudsen, D. C. (2022). Food security and well-being among older, rural Americans before and during the COVID-19 pandemic. *PloS One*, *17*(9), e0274020–e0274020. https://doi.org/10.1371/journal.pone.0274020

Carroll, J.M., Pattison, E., Muller, C., & Sutton, A. (2020). Barriers to bachelor's degree completion among college students with a disability. *Sociological Perspectives, 63*(5), 809–832. https://doi.org/10.1177/0731121420908896

Casanova & Price, L. (2018). Moving towards sustainable policy and practice – A five level framework for online learning sustainability. *Canadian Journal of Learning and Technology, 44*(3). https://doi.org/10.21432/cjlt27835

Categories of Disability under IDEA. National Dissemination Center for Children with Disabilities (NICHCY). (2012). Distributed by ERIC Clearinghouse.

Centers for Disease Control and Prevention. (2022, October 28). *Disability impacts all of us infographic*. Centers for Disease Control and Prevention. Retrieved November 15, 2022, from https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html

Cerasani, Rrapi, Sharma, Ferritto, Nguyen, Ryan Barrette, & Mason. (2022). Identifying and addressing basic needs insecurity among medical students: A curriculum for trainees, administrators, and faculty. *MedEdPORTAL, 18*. https://doi.org/10.15766/mep_2374-8265.11195

Chao, P.C., (2017). Using self-determination of senior college students with disabilities to predict their quality of life one year after graduation. *European Journal of Educational Research, 7*(1), 1–8. https://doi.org/10.12973/eu-jer.7.1.1

Chown, N., Baker-Rogers, J., Hughes, L., Cossburn, K. N., & Byrne, P. (2018). The "High Achievers" project: An assessment of the support for students with autism attending UK universities. *Journal of Further and Higher Education, 42*(6), 837–854. https://doi.org/10.1080/0309877X.2017.1323191

Coleman-Jensen, A. J. (2020). U.S food insecurity and population trends with a focus on adults with disabilities. *Physiology & Behavior*, *220*, 112865–112865. https://doi.org/10.1016/j.physbeh.2020.112865

Colker. (2018). *Special education law in a nutshell*. West Academic Publishing.

Common data project – 2020 report. Great Schools Partnership. (n.d.). Retrieved November 4, 2022, from https://www.greatschoolspartnership.org/data-report/

Cotti, C. Gordanier, J., & Ozturk, O. (2018). When does it count? The timing of food stamp receipt and educational performance. *Economics of Education Review*, *66*, 40–50. https://doi.org/10.1016/j.econedurev.2018.06.007

Cox, R. Henwood, B., Rodnyansky, S., Rice, E., & Wenzel, S. (2019). Road map to a unified measure of housing insecurity. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2817626

Creswell, J. (2014). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (5th ed.). Boston, MA: Pearson.

Crutchfield, R. M., & Maguire, J. (2017). Researching basic needs in higher education. Retrieved from http://www.calstate.edu/basicneeds

Dawkins. (2021). *Just housing: The moral foundations of American housing policy*. The MIT Press.

De Brey, Snyder, T. D., Zhang, A., & Dillow, S. A. (2021). *Digest of Education Statistics 2019. 55th Edition. NCES 2021-009*. Distributed by ERIC Clearinghouse.

Dickinson, M. (2019). *Feeding the Crisis: Care and Abandonment in America's Food Safety Net* (1st ed., Vol. 71). University of California Press. https://doi.org/10.2307/j.ctvqr1bbj

Dohlman, DiMeglio, M., Hajj, J., & Laudanski, K. (2019). Global brain drain: How can the Maslow theory of motivation improve our understanding of physician migration? *International*

Journal of Environmental Research and Public Health, *16*(7), 1182–. https://doi.org/10.3390/ijerph16071182

Dube, N., & Balleni, L. (2022). The experiences of higher education students with disabilities in online learning during the COVID-19 pandemic. *Journal of Culture and Values in Education*, *5*(1). https://doi.org/10.46303/jcve.2022.6

Duffin, E. (2020). *Leading distance learning institutions in the United States in 2018, by number of students taking at least one distance learning course*. https://www.statista.com/statistics/944274/us-distance-learning-institutions-by-enrollment-students/

Dwivedi & Badge, J. (2021). Maslow theory revisited-Covid-19 - Lockdown impact on consumer behaviour. *Turkish Journal of Computer and Mathematics Education*, *12*(2), 2445–2450. https://doi.org/10.17762/turcomat.v12i2.2072

Dzubur, E., Semborski, S., Redline, B., Hedeker, D., Dunton, G. F., & Henwood, B. F. (2022). Food insecurity, hunger, stress, and homelessness among young adults. *Health Psychology*, *41*(8), 559–565. https://doi.org/10.1037/hea0001214

Eide, S. (2022). *Homelessness in America: The history and tragedy of an intractable social problem*. Rowman et Littlefield.

El Zein, A., Shelnutt, K. P., Colby, S., Vilaro, M. J., Zhou, W., Greene, G., Olfert, M. D., Riggsbee, K., Morrell, J. S., & Mathews, A. E. (2019). Prevalence and correlates of food insecurity among U.S. college students: A multi-institutional study. *BMC Public Health*, *19*(1), 660–660. https://doi.org/10.1186/s12889-019-6943-6

Ellis, R., Brennan, P., Cleland, J., Lee, A., & Scrimgeour, D. (2021). EP.TU.6.The impact of disability on performance in the intercollegiate membership of the royal college of surgeons

examination (MRCS). *British Journal of Surgery*, *108*(Supplement_7). https://doi.org/10.1093/bjs/znab311.002

Feeding America. (2023). *Hunger in America*. Feeding America. Retrieved February 22, 2023, from https://www.feedingamerica.org/hunger-in-america#:~:text=Facts%20about%20hunger%20in%20America,United%20States%20are%20food%20insecure

Fernandes, J. (2018, March 5). Poverty is largely invisible among college students. https://talkpoverty.org/2017/11/07/poverty-largely-invisible-among-college-students/index.html

Fernandes, P. Haley, M., Eagan, K., Shattuck, P. T., & Kuo, A. A. (2021). Health needs and college readiness in autistic students: The freshman survey results. *Journal of Autism and Developmental Disorders*, *51*(10), 3506–3513. https://doi.org/10.1007/s10803-020-04814-8

Fichten, C., Havel, A., Jorgensen, M., Wileman, S., & Budd, J. (2022). Twenty years into the 21st century – tech-related accommodations for college students with mental health and other disabilities. *Journal of Education and Training. 10*(4), 16. https://doi.org/10.11114/jets.v10i4.5594

Fielding-Singh. (2021). *How the other half eats: The untold story of food and inequality in America* (First edition.). Little, Brown Spark.

Finley, E., & Meeks, L. M. (2020). Using a diagnostic OSCE to discern deficit from disability in struggling students. *Academic Medicine*, *96*(2), 228–231. https://doi.org/10.1097/ACM.0000000000003421

Flynn. (2016). Should at-risk students take online courses? *College Student Journal*, *50*(1), 130–134.

Foster, J. S., Schwartz, M. B., Grenier, R. S., Burke, M. P., Taylor, E. A., & Mobley, A. R. (2019). A qualitative investigation into the U.S. Department of Agriculture 18-item Household Food Security Survey Module: Variations in interpretation, understanding and report by gender. *Journal of Public Affairs*, *19*(3), e1861–n/a. https://doi.org/10.1002/pa.1861

Francis, Duke, J. M., Fujita, M., & Sutton, J. C. (2019). "It's a constant fight:" Experiences of college students with disabilities. *Journal of Postsecondary Education and Disability (Print)*, *32*(3), 247–262.

Gall, M., Gall, J., & Borg, W. (2007). *Educational research: An introduction* (8th ed.). Boston, MA: Pearson.

Gin, L.E., Pais, D. C., Parrish, K. D., Brownell, S. E., & Cooper, K. M. (2021). New online accommodations are not enough: The mismatch between student needs and supports given for students with disabilities during the COVID-19 pandemic. *Journal of Microbiology & Biology Education*, *23*(1). https://doi.org/10.1128/jmbe.00280-21

Glantsman, O., McGarity-Palmer, R., Swanson, H. L., Carroll, J. T., Zinter, K. E., Lancaster, K. M., & Berardi, L. (2022). Risk of food and housing insecurity among college students during the COVID-19 pandemic. *Journal of Community Psychology*, *50*(6), 2726–2745. https://doi.org/10.1002/jcop.22853

Glendening, Z.S., McCauley, E., Shinn, M., & Brown, S. R. (2018). Long-term housing subsidies and SSI/SSDI income: Creating health-promoting contexts for families experiencing housing instability with disabilities. *Disability and Health Journal*, *11*(2), 214–220. https://doi.org/10.1016/j.dhjo.2017.08.006

Goegan & Daniels, L. M. (2022). Online learning for students with learning disabilities and their typical peers: The association between basic psychological needs and outcomes. *Learning Disabilities Research and Practice, 37*(2), 140–150. https://doi.org/10.1111/ldrp.12277

Gorfido. (2020). Homeless and helpless: How the United States has failed those with severe and persistent mental illness. *Journal of Law and Health, 34*(1), 106–128.

Goodman, J., Melkers, J., & Pallais, A. (2019). Can online delivery increase access to education? *Journal of Labor Economics, 37*(1), 1–34. https://doi.org/10.1086/698895

Griffith, D., & Slade, S. (2018). A whole child umbrella. *Educational Leadership* (Vol. 76, Issue 2, pp. 36). ASCD.

Gulliford, M. C., Mahabir, D., & Rocke, B. (2004, June 16). *Reliability and validity of a short form household food security scale in a Caribbean Community*. BMC public health. Retrieved November 18, 2022, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC441385/

Hadfield-Spoor, M., Avendano, M., & Loopstra, R. (2022). Food insecurity among disabled adults. *European Journal of Public Health, 32*(4), 593–599. https://doi.org/10.1093/eurpub/ckac034

Hadley. (2017). The four-year college experience of one student with multiple learning disabilities. *College Student Journal, 51*(1), 19–28.

Hafiz, A. A., Gallagher, A. M., Devine, L., & Hill, A. J. (2023). University student practices and perceptions on eating behaviours whilst living away from home. *International Journal of Educational Research, 117*, 102133–. https://doi.org/10.1016/j.ijer.2022.102133

Hagedorn, R. L., Olfert, M. D., MacNell, L., Houghtaling, B., Hood, L. B., Savoie Roskos, M. R., Goetz, J. R., Kern-Lyons, V., Knol, L. L., Mann, G. R., Esquivel, M. K., Hege, A., Walsh, J., Pearson, K., Berner, M., Soldavini, J., Anderson-Steeves, E. T., Spence, M., Paul, C., … Fontenot, M. C. (2021). College student sleep quality and mental and physical health are

associated with food insecurity in a multi-campus study. *Public Health Nutrition, 24*(13), 4305–4312. https://doi.org/10.1017/S1368980021001191

Hallett, R. E. & Frias, A. (2018). Community college students' experiences with homelessness and housing insecurity. *Community College Journal of Research and Practice*, *42*(10), 724–739. https://doi.org/10.1080/10668926.2017.1356764

Hansen, K. D. & Dawson, D. L. (2020). "We can do better": Community college faculty preparedness for teaching students with learning disabilities. *Journal of Diversity in Higher Education*, *13*(4), 309–319. https://doi.org/10.1037/dhe0000142

Heflin, C. M., Altman, C. E., & Rodriguez, L. L. (2019). Food insecurity and disability in the United States. *Disability and Health Journal*, *12*(2), 220–226. https://doi.org/10.1016/j.dhjo.2018.09.006

Hiller, M. B., Winham, D. M., Knoblauch, S. T., & Shelley, M. C. (2021). Food security characteristics vary for undergraduate and graduate students at a Midwest university. *International Journal of Environmental Research and Public Health*, *18*(11), 5730–. https://doi.org/10.3390/ijerh18115730

Hossfeld, L. H., Kelly, E. B., & Waity, J. F. (2018). *Food and poverty: Food insecurity and food sovereignty among America's poor*. Vanderbilt University Press.

Hoyle, J. N., Laditka, J. N., & Laditka, S. B. (2022). "Eventually I'm gonna need people": Social capital among college students with developmental disability. *Research in Developmental Disabilities*, *127,* 104270–104270. https://doi.org/10.1016/j.ridd.2022.104270

Hubbard, S., Jackson, M. S., Hassenbein, W., & Bertram, J. (2021). Cultivating safe and stable spaces: Reflections on a campus-based support program for foster care alumni and youth

experiencing homelessness. *Children and Youth Services Review*, *130*, 106247. https://doi.org/10.1016/j.childyouth.2021.106247

Huisken, A., & Bottorff, J. L. (2020). Correlates of food insecurity among undergraduate students. *Canadian Journal of Higher Education, 50*(2), 15–23. https://doi.org/10.47678/cjhe.v50i2.188699

Innis, J. A., Bishop, M., & Boloudakis, S. (2020). Food insecurity and community college students. *Community College Journal of Research and Practice*, *44*(9), 694–699. https://doi.org/10.1080/10668926.2019.1635541

James, S., McLanahan, S., & Brooks-Gunn, J. (2021). Contributions of the Fragile Families and Child Wellbeing Study to child development. *Annual Review of Developmental Psychology*, *3*(1), 187–206. https://doi.org/10.1146/annurev-devpsych-050620-113832

James, T. L., Zhang, J., Li, H., Ziegelmayer, J. L., & Villacis-Calderon, E. D. (2021). The moderating effect of technology overload on the ability of online learning to meet students' basic psychological needs. *Information Technology & People. 35*(4). https://doi.org/10.1108/ITP-03-2021-0225

Jones, N., Sanchez Tapia, I., Baird, S., Guglielmi, S., Oakley, E., Yadete, W. A., Sultan, M., & Pincock, K. (2021). Intersecting barriers to adolescents' educational access during COVID-19: Exploring the role of gender, disability, and poverty. *International Journal of Educational Development*, *85*.102428. https://doi.org/10.1016/j.ijedudev.2021.102428

Jones, S., & Varga, M. (2021). Students who experienced foster care are on campus: Are colleges ready? *Georgia Journal of College Student Affairs, 37*(2). https://doi.org/10.20429/gcpa.2021.370202

Jorgensen, M., Budd, J., Fichten, C. S., Nguyen, M. N., & Havel, A. (2018). Graduation prospects of college students with specific learning disorder and students with mental health related disabilities. *International Journal of Higher Education, 7*(1), 19–31. https://doi.org/10.5430/ijhe.v7n1p19

Kauffman, J.M., Ahrbeck, B., Anastasiou, D., Badar, J., Felder, M., & Hallenbeck, B. A. (2021). Special education policy prospects: Lessons from social policies past. *Exceptionality: The Official Journal of the Division for Research of the Council for Exceptional Children, 29*(1), 16–28. https://doi.org/10.1080/09362835.2020.1727326

Khosla, N., Gamba, R., Taylor, S., Adediji, L., Bovey, J., Engelman, A., Jones-Bey, A., Lan, T. K., Vo, H., Washington, V., & Inch, E. S. (2020). Academic goal-setting among IHE students experiencing food insecurity, housing instability, and other challenges in a diverse public university. *Journal of Social Distress and Homeless*, *29*(1), 3–15. https://doi.org/10.1080/10530789.2020.1678810

Kim, J. H., Kim, H., & Kim, D. (2021). Research on college professors' perception of classroom disability support services in South Korea. *Journal of Student Research (Houston, Tex.), 9*(2). https://doi.org/10.47611/jsr.v9i2.802

King, C. (2018). Food insecurity and housing instability in vulnerable families. *Review of Economics of the Household*, *16*(2), 255–273. https://doi.org/10.1007/s11150-016-9335-z

Klivlighan, D. M., Gates, C., Hong, J. E., Corkery, J. M., Anderson, C. L., & Keeton, P. M. (2020). The role of mental health counseling in college students' academic success: An interrupted time series analysis. *Journal of Counseling Psychology*, *68*(5), 562–570. https://doi.org/10.1037/cou0000534

Kotera, Y., Cockerill, V., Green, P., Hutchinson, L., Shaw, P., & Bowskill, N. (2019). Towards another kind of borderlessness: Online students with disabilities. *Distance Education*, *40*(2), 170–186. https://doi.org/10.1080/01587919.2019.1600369

Kravets, M., & Wax, I. F. (2021). *The K&W Guide to colleges for students with learning differences: 360 schools with programs or services for students with Adhd, Asd, or learning differences*. Princeton Review, a Penguin Random House LLC.

Kreider, C., Medina, S., Slamka, M., & Apostol, J. (2021). Personalized understanding of one's disability supports the occupational performance of young people with learning disabilities (LD) or Attention Deficit Hyperactivity Disorder (ADHD) transitioning through college. *The American Journal of Occupational Therapy*, *74*(4_Supplement_1), 7411505127–7411505127p1. https://doi.org/10.5014/ajot.2020.74S1-PO3123

Lambert, D. C., & Dryer, R. (2018). Quality of life of higher education students with learning disability studying online. *International Journal of Disability, Development, and Education*, *65*(4), 393–407. https://doi.org/10.1080/1034912X.2017.1410876

LeBlanc. (2020). America at Hunger's Edge. *The New York Times Magazine*, 6–4.

Lederer, A. M., Hoban, M. T., Lipson, S. K., Zhou, S., & Eisenberg, D. (2021). More than inconvenienced: The unique needs of U.S. college students during the COVID-19 pandemic. *Health Education & Behavior*, *48*(1), 14–19. https://doi.org/10.1177/1090198120969372

Lee, C. Y., Zhao, X., Reesor-Oyer, L., Cepni, A. B., & Hernandez, D. C. (2021). Bidirectional relationship between food insecurity and housing instability. *Journal of the Academy of Nutrition and Dietetics*, *121*(1), 84–91. https://doi.org/10.1016/j.jand.2020.08.081

Leibman. (2020). There's a hunger crisis in America. *Baltimore Jewish Times*, *377*(8), 16–16.

Leung, C. W., Farooqui, S., Wolfson, J. A., & Cohen, A. J. (2021). Understanding the cumulative burden of basic needs insecurities: Associations with health and academic achievement among college students. *American Journal of Health Promotion*, *35*(2), 275–278. https://doi.org/10.1177/0890117120946210

Leslein, A., & Hatsu, I. (2019). The relationship between food insecurity and symptoms of attention-deficit hyperactivity disorder in children: A summary of the literature. *Nutrients*, *11*(3), 659–. https://doi.org/10.3390/nu11030659

Lightfoot, Janemi, R., & Rudman, D. L. (2018). Perspectives of North American postsecondary students with learning disabilities: A scoping review. *Journal of Postsecondary Education and Disability (Print)*, *31*(1), 57–74.

Lippert, A.M., & Lee, B. A. (2021). Adult and child food insecurity among homeless and precariously-housed families at the close of the twentieth century. *Population Research and Policy Review*, *40*(2), 231–253. https://doi.org/10.1007/s11113-020-09577-9

Mamboleo, G., Dong, S., Anderson, S., & Molder, A. (2020). Accommodation experience: Challenges and facilitators of requesting and implementing accommodations among college students with disabilities. *Journal of Vocational Rehabilitation*, *53*(1), 43–54. https://doi.org/10.3233/JVR-201084

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*(4), 370–396. https://doi.org/10.1037/h0054346

Maslow, A.H. (1954). Motivation and personality [1st ed.] New York: Harper.

Martinez, S. M., Esaryk, E. E., Moffat, L., & Ritchie, L. (2021). Redefining basic needs for higher education: It's more than minimal food and housing according to California University

Students. *American Journal of Health Promotion*, *35*(6), 818–834. https://doi.org/10.1177/0890117121992295

Matsuda. (2020). Optimal timing of college subsidies: Enrollment, graduation, and the skill premium. *European Economic Review*, *129*, 103549–. https://doi.org/10.1016/j.euroecorev.2020.103549

McManus, D., Dryer, R., & Henning, M. (2017). Barriers to learning online experienced by students with a mental health disability. *Distance Education*, *38*(3), 336–352. https://doi.org/10.1080/01587919.2017.1369348

Melián, E., & Meneses, J. (2022). Getting ahead in the online university: Disclosure experiences of students with apparent and hidden disabilities. *International Journal of Educational Research*, *114*, 101991–. https://doi.org/10.1016/j.ijer.2022.101991

Meza, A., Altman, E., Martinez, S., & Leung, C. W. (2019). "It's a feeling that one is not worth food": A qualitative study exploring the psychosocial experience and academic consequences of food insecurity among college students. *Journal of the Academy of Nutrition and Dietetics*, *119*(10), 1713–1721.e1. https://doi.org/10.1016/j.jand.2018.09.006

Miller, B., Taylor, K., & Ryder, R. E. (2019). Introduction to special topic: Serving children with disabilities within multitiered systems of support. *AERA Open*, *5*. https://doi.org/10.1177/2332858419853796

Matias, S., Marois, M., & Schenker, M. (2020). Prevalence and correlates of food insecurity in Latino farm worker households in California's central valley. *Current Developments in Nutrition*, *4*(Supplement_2), 237–237. https://doi.org/10.1093/cdn/nzaa043_088

Meeks, L. M., Plegue, M., Swenor, B. K., Moreland, C. J., Jain, S., Grabowski, C. J., Westervelt, M., Case, B., Eidtson, W. H., Meeks, R., Angoff, N. R., Leconche, J., Temple, B. M., Poullos, P., Sanchez-Guzman, M., Coates, C., Low, C., Henderson, M. C., Purkiss, J., & Kim, M. H.

(2022). The performance and trajectory of medical students with disabilities: Results from a multisite, multicohort study. *Academic Medicine, 97*(3), 389–397. https://doi.org/10.1097/ACM.0000000000004510

Murphy, C.A., & Stewart, J. C. (2017). On-campus students taking online courses: Factors associated with unsuccessful course completion. *The Internet and Higher Education, 34*, 1–9. https://doi.org/10.1016/j.iheduc.2017.03.001

Myhr, A., Lillefjell, M., Espnes, G. A., & Halvorsen, T. (2018). Do family and neighborhood matter in secondary school completion? A multilevel study of determinants and their interactions in a life-course perspective. *PloS One, 12*(2), e0172281–e0172281. https://doi.org/10.1371/journal.pone.0172281

Nachman, B.R., & Brown, K. R. (2022). Crip places: Dismantling disability discourse in the 2-year college literature. *Journal of Diversity in Higher Education*. https://doi.org/10.1037/dhe0000443

Nagata, S., McCormick, B., Brusilovskiy, E., Zisman-Ilani, Y., Wilson, S., Snethen, G., Townley, G., & Salzer, M. S. (2021). Emotional states associated with being in the community and being with others among individuals with serious mental illnesses. *American Journal of Orthopsychiatry, 91*(1), 1–8. https://doi.org/10.1037/ort0000516

National Academies of Sciences, Engineering, and Medicine. 2018. *Permanent Supportive Housing: Evaluating the Evidence for Improving Health Outcomes Among People Experiencing Chronic Homelessness*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25133.

Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., ... Ritchie, L. (2018). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition, 22*, 1–16. https://doi:10.1080/19320248.2018.1484316

Noltemeyer, A., James, A. G., Bush, K., Bergen, D., Barrios, V., & Patton, J. (2021). The relationship between deficiency needs and growth needs: The continuing investigation of Maslow's Theory. *Child & Youth Services, 42*(1), 24–42. https://doi.org/10.1080/0145935X.2020.1818558

Oh, H., Smith, L., Jacob, L., Du, J., Shin, J. I., Zhou, S., & Koyanagi, A. (2022). Food insecurity and mental health among young adult college students in the United States. *Journal of Affective Disorders, 303*, 359–363. https://doi.org/10.1016/j.jad.2022.02.009

Olfert, M.D., Hagedorn-Hatfield, R. L., Houghtaling, B., Esquivel, M. K., Hood, L. B., MacNell, L., Soldavini, J., Berner, M., Savoie Roskos, M. R., Hingle, M. D., Mann, G. R., Waity, J. F., Knol, L. L., Walsh, J., Kern-Lyons, V., Paul, C., Pearson, K., Goetz, J. R., Spence, M., Coleman, P. (2021). Struggling with the basics: Food and housing insecurity among college students across twenty-two colleges and universities. *Journal of American College Health, ahead-of-print*(ahead-of-print), 1–12. https://doi.org/10.1080/07448481.2021.1978456

Osborne, A. G., Russo, C. J., Lavoie, R. D., & Eckes, S. (2021). *Special education and the law: A guide for practitioners*. Corwin Press.

O'Shea & Kaplan, A. (2018). Disability identity and use of services among college students with psychiatric disabilities. *Qualitative Psychology, (Washington, D.C.), 5*(3), 358–379. https://doi.org/10.1037/qup0000099

Owens, M.R., Brito-Silva, F., Kirkland, T., Moore, C. E., Davis, K. E., Patterson, M. A., Miketinas, D. C., & Tucker, W. J. (2020). Prevalence and social determinants of food insecurity among

college students during the COVID-19 pandemic. *Nutrients*, *12*(9), 2515–. https://doi.org/10.3390/nu12092515

Paik. (2021). *Trapped in a Maze: How Social Control Institutions Drive Family Poverty and Inequality*. University of California Press.

Park, J.E., Kim, S. Y., Kim, S. H., Jeoung, E. J., & Park, J. H. (2020). Household food insecurity: Comparison between families with and without members with disabilities. *International Journal of Environmental Research and Public Health*, *17*(17), 6149–. https://doi.org/10.3390/ijerph17176149

Payne-Sturges, D.C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, *32*(2), 349–354. https://doi.org/10.1177/0890117117719620

Pillay, M. & Quarmby, C. A. (2018). The intersection of disability and food security: Perspectives of health and humanitarian aid workers. *African Journal of Disability*, *7*(1), 1–9. https://doi.org/10.4102/ajod.v7i0.322

(2022, September 26). *Factsheets*. PNPI. Retrieved November 4, 2022, from https://pnpi.org/students-with-disabilities-in-higher-education/

Potvin, M.C., Chabot, M., Boney, J., Beach, C., Ryan, M. A., Barrett, M. P., & Carr, K. (2021). Efficacy of OT-led coaching on college students with disabilities' academic learning and living successes. *The American Journal of Occupational Therapy*, *75*(S2), 7512515333–7512515333p1. https://doi.org/10.5014/ajot.2021.75S2-RP333

Raj, C., (2021). The lost promise of disability rights. *Michigan Law Review*, *119*(5), 933–985. https://repository.law.umich.edu/mlr/vol119/iss5/3

Rajaretnam. (2016). *Statistics for social sciences*. SAGE.

Raven, S., (2021). Why does this matter? The value of intersectionality. *Cultural Studies of Science Education*, *16*(4), 1137–1148. https://doi.org/10.1007/s11422-020-10007-7

Reppond, H. (2019, December). *Many college students struggle to have their basic needs met*. American Psychological Association. Retrieved February 9, 2023, from https://www.apa.org/pi/ses/resources/indicator/2019/12/college-students-needs

Reims, N., & Tophoven, S. (2021). Double burden of disability and poverty: Does vocational rehabilitation ease the school-to-work transition? *Social Inclusion*, *9*(4), 92–102. https://doi.org/10.17645/si.v9i4.4649

Robbins, M. K., Spence, M., & Steeves, E. A. (2022). A cross sectional assessment of basic needs insecurity prevalence and associated factors among college students enrolled at a large, public university in the Southeastern U.S. *BMC Public Health*, *22*(1), 419–419. https://doi.org/10.1186/s12889-022-12817-6

Rose-Jacobs, R., Ettinger de Cuba, S., Bovell-Ammon, A., Black, M. M., Coleman, S. M., Cutts, D., Chilton, M., Heeren, T., Casey, P., Ochoa, E., Frank, D. A., & Sandel, M. (2019). Housing instability among families with young children with special health care needs. *Pediatrics (Evanston)*, *144*(2), e20181704–. https://doi.org/10.1542/peds.2018-1704

Rosenbaum, J. E., (2018). Disabilities and degrees: Identifying health impairments that predict lower chances of college enrollment and graduation in a nationally representative sample. *Community College Review*, *46*(2), 145–175. https://doi.org/10.1177/0091552118762630

Rozalski, M., Yell, M. L., & Warner, J. (2021). Free Appropriate Public Education, the U.S. Supreme Court, and developing and implementing individualized education programs. *Laws*, *10*(2), 38. https://doi.org/10.3390/laws10020038

Runesi, S., Tajuddin, A. I., Fufu, R. D. A., & Arif, Y. (2022). The relationship between Abraham Maslow's Theory of Learning Motivation and the learning motivation of FKIP students of Nusa Cendana University. *Kinestetik (Online)*, *6*(3), 520–527. https://doi.org/10.33369/jk.v6i3.23342

Russell, M.B., Head, L. S.-W., Wolfe-Enslow, K., Holland, J., & Zimmerman, N. (2022). The COVID-19 effect: How student financial well-being, needs satisfaction, and college persistence has changed. *Journal of College Student Retention : Research, Theory & Practice*, 152102512211337–. https://doi.org/10.1177/15210251221133767

Ryan, M., Beach, C., Boney, J., Chabot, M., Potvin, M.-C., Seaver, A., Barrett, M., & Carr, K. (2020). Efficacy of coaching in supporting college students with disabilities in achieving their academic learning and living goals. *The American Journal of Occupational Therapy*, *74*(4_Supplement_1), 7411515349–7411515349p1. https://doi.org/10.5014/ajot.2020.74S1-PO1200

Sackey, J., Guzmán, N., Hatzenbuhler, S., Liu, Y., Newman, M., Trudeau, T., & Sullivan, J. (2022). A review of basic needs (food security, housing security, and homelessness) of US college students' during the COVID-19 pandemic. *Current Developments in Nutrition*, *6* (Supplement_1), 168–168. https://doi.org/10.1093/cdn/nzac051.084

Salkin & Ko. (2020). Should I stay or should I go?: Student housing, remote instruction, campus policies, and COVID-19. *The Urban Lawyer*, *50*(3), 371–399.

Sanabria, T., Penner, A., & Domina, T. (2020). Failing at remediation? College remedial course taking, failure and long-term student outcomes. *Research in Higher Education*, *61*(4), 459–484. https://doi.org/10.1007/s11162-020-09590-z

Sandoval-Palis, I., Naranjo, D., Vidal, J., & Gilar-Corbi, R. (2020). Early dropout prediction model: A case study of university leveling course students. *Sustainability (Basel, Switzerland)*, *12*(22), 1–17. https://doi.org/10.3390/su12229314

Schellekens, J. J., (2019). Explaining disability trends in the United States, 1963-2015. *Population and Development Review*, *45*(4), 819–834. https://doi.org/10.1111/padr.12292

Schlesselman, L. & Psych, E. (2019). Bringing to light the risk of food and housing insecurity in pharmacy students. *American Journal of Pharmaceutical Education*, *83*(7), 1453–1454. https://doi.org/10.5688/ajpe7567

Schwartz, N., Buliung, R., & Wilson, K. (2019). Disability and food access and insecurity: A scoping review of the literature. *Health & Place*, *57*, 107–121. https://doi.org/10.1016/j.healthplace.2019.03.011

Semeah, L.M., Ahrentzen, S., Cowper-Ripley, D. C., Santos-Roman, L. M., Beamish, J. O., & Farley, K. (2019). Rental housing needs and barriers from the perspective of veterans with disabilities. *Housing Policy Debate*, *29*(4), 542–558. https://doi.org/10.1080/10511482.2018.1543203

Shin, H. (2021). From the study on the U.S. Education for All Handicapped Children Act to the alternative of convergence of psychomotorik. *The Journal of Humanities and Social Sciences 21*, *12*(6), 1747–1760. https://doi.org/10.22143/HSS21.12.6.123

Shisler, R., Oceguera, Hardison-Moody, & Bowen. (2023). Addressing the root causes of food and housing insecurity among college students. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2). https://doi.org/10.5304/jafscd.2023.122.022

Speirs, K.E., Munger, A. L., & Ottusch, T. M. (2023). How do U.S. colleges and universities help students address basic needs? A national inventory of resources for food and housing

insecurity. *Educational Researcher*, *52*(1), 16–28. https://doi.org/10.3102/0013189X221139292

Su, J.H., & Dwyer, E. A. (2020). Repackaging fatherhood: Father engagement and cooperative coparenting in mid-pregnancy marriages and cohabitations. *Journal of Marriage and Family*, *82*(5), 1625–1636. https://doi.org/10.1111/jomf.12698

Standen, P. (2021). *Disability: The genealogy of a concept from prehistory to mid-20th century*. Onion River Press.

Stiker, H. J., Sayers, W., Mitchell, D. T., & Snyder, S. L. (2019). *A history of disability*. The University of Michigan Press.

Stott, G. & Morrell, J. S. (2021). College students with disabilities report higher rates of food insecurity. *Current Developments in Nutrition*, *5*(Supplement_2), 186–186. https://doi.org/10.1093/cdn/nzab035_094

Sublett, C., (2022). The access-equity dualism of online learning in community colleges. *New Directions for Community Colleges*, *2022*(198), 25–36. https://doi.org/10.1002/cc.20508

Super, D. A. (2020). Acute poverty: The fatal flaw in U.S. anti-poverty law. *UC Irvine Law Review*, *10*(4), 1273-.

Thomson, R. M., Igelström, E., Purba, A. K., Shimonovich, M., Thomson, H., McCartney, G., Reeves, A., Leyland, A., Pearce, A., & Katikireddi, S. V. (2022). How do income changes impact on mental health and wellbeing for working-age adults? A systematic review and meta-analysis. *The Lancet. Public Health*, *7*(6), e515–e528. https://doi.org/10.1016/S2468-2667(22)00058-5

Trawver, K., Broton, K. M., Maguire, J., & Crutchfield, R. (2020). Researching food and housing insecurity among America's college students: Lessons learned and future steps. *Journal of Social Distress and Homeless*, *29*(1), 39–46. https://doi.org/10.1080/10530789.2020.1678809

Trybus, M.J., Breneman, D. L., & Gravett, E. O. (2019). Ableism, accessibility, and educational development: A disability studies perspective. *New Directions for Teaching and Learning*, *2019*(158), 59–68. https://doi.org/10.1002/tl.20339

Urke, H.B., Cao, Z.R. & Egeland. (2014). Validity of a single item food security questionnaire in Arctic Canada. *U.S. National Library of Medicine*. Retrieved November 18, 2022, from https://pubmed.ncbi.nlm.nih.gov/24864166/

Valle-Flórez, R.E., de Caso Fuertes, A. M., Baelo, R., & García-Martín, S. (2021). Faculty of education professors' perception about the inclusion of university students with disabilities. *International Journal of Environmental Research and Public Health*, *18*(21), 11667–. https://doi.org/10.3390/ijerph182111667

Walsh-Dilley, M., Coakley, K. E., Mechler, H., & Cargas, S. (2022). Understanding the double burden: A mixed method analysis of overlapping food and housing insecurity among college students at a minority serving institution. *Journal of Social Distress and Homeless, ahead-of-print*(ahead-of-print), 1–14. https://doi.org/10.1080/10530789.2022.2130585

Warner, R. M. (2013). *Applied statistics: From bivariate through multivariate techniques* (2nd ed.). Sage Publications, Inc.

Waters-Bailey, S., McGraw, M. S., & Barr, J. (2019). Serving the whole student: Addressing nonacademic barriers facing rural community college students. *New Directions for Community Colleges*, *2019*(187), 83–93. https://doi.org/10.1002/cc.20372

Weissman. (2020). For tribal colleges that have always struggled with internet access, moving online isn't easy. *Diverse Issues in Higher Education*, *37*(4), 9–9.

Whittle, H.J., Leddy, A. M., Shieh, J., Tien, P. C., Ofotokun, I., Adimora, A. A., Turan, J. M., Frongillo, E. A., Turan, B., & Weiser, S. D. (2020). Precarity and health: Theorizing the intersection of multiple material-need insecurities, stigma, and illness among women in the United States. *Social Science & Medicine (1982)*, *245*, 112683–112683. https://doi.org/10.1016/j.socscimed.2019.112683

Weinstein, L.C., Chilton, M., Turchi, R., Klassen, A. C., LaNoue, M., Silvero, A., & Cabassa, L. J. (2021). "It"s common sense that an individual must eat': Advocating for food justice with people with psychiatric disabilities through photovoice. *Health Expectations: an International Journal of Public Participation in Health Care and Health Policy*, *24*(1), 161–173. https://doi.org/10.1111/hex.13101

Williamson, B. (2020). *Accessible America: A history of disability and Design*. New York University Press.

Williams, M.R., & Do, D. P. (2022). Income disparities in mental health: investigating the role of food insecurity by disability status. *Public Health Nutrition*, 1–11. https://doi.org/10.1017/S1368980022002063

Williams, S.C., Militello, M., & Majewski, D. (2020). Sorting out important elements for successful college transition and completion for students with learning differences. *Preventing School Failure*, *64*(4), 326–338. https://doi.org/10.1080/1045988X.2020.177667

Wood, J.L., & Harris, F. (2018). Experiences with "acute" food insecurity among IHE students. *Educational Researcher*, *47*(2), 142–145. https://doi.org/10.3102/0013189X17752928

Wu, F., Zheng, Q., Tian, F., Suo, Z., Zhou, Y., Chao, K.-M., Xu, M., Shah, N., Liu, J., & Li, F. (2020). Supporting poverty-stricken college students in smart campus. *Future Generation Computer Systems, 111*, 599–616. https://doi.org/10.1016/j.future.2019.09.017

Xu, L., Pirog, M. A., & Vargas, E. D. (2016). Child support and mixed-status families: An analysis using the Fragile Families and Child Wellbeing Study. *Social Science Research, 60*, 249–265. https://doi.org/10.1016/j.ssresearch.2016.06.005

Yurdakul, G., & Arar, T. (2023). Revisiting Maslow's hierarchy of needs: Is it still universal content? *Journal of Human Behavior in the Social Environment, ahead-of-print*(ahead-of-print), 1–28. https://doi.org/10.1080/10911359.2023.2177227

Zdenek, S., (2020). Transforming access and inclusion in composition studies and technical communication. *College English, 82*(5), 536–544.

Zepeda, L., (2018). Hiding hunger: Food insecurity in middle America. *Agriculture and Human Values, 35*(1), 243–254. https://doi.org/10.1007/s10460-017-9818-4

Zilvinskis, J. (2022). The mediating effects of student services on engagement among first-generation and transfer students who use disability services at community colleges. *Community College Review*, *50*(1), 71–95. https://doi.org/10.1177/00915521211047675

Zirkel, P.A., (2020). An updated primer of special education law. *Teaching Exceptional Children, 52*(4), 261–265. https://doi.org/10.1177/0040059919878671

APPENDICES

APPENDIX A: IDEA 13 Categories of Disability

How do you know if you have a disability?

You are considered to have a disability if you have a physical or mental impairment or medical condition that substantially limits a major life activity, or if you have a history or record of such an impairment or medical condition. *Disabilities include, but are not limited to:*

[ ] Autism Spectrum Disorder

[ ] Deaf-Blindness

[ ] Deafness

[ ] Emotional Disturbance

[ ] Hearing Impairment

[ ] Intellectual Disability

[ ] Multiple Disabilities

[ ] Orthopedic Impairment

[ ] Other Health Impairment

[ ] Specific Learning Disability

[ ] Speech or Language Impairment

[ ] Traumatic Brain Injury

[ ] Visual Impairment, including Blindness

[ ] Other: _____

APPENDIX B; Qualtrics Survey Distributed to Students

Part 1: Student Demographics

Gender:

[ ] Female

[ ] Male

[ ] Non-binary

[ ] Fluid

[ ] Other

University Status:

[ ] Freshman

[ ] Sophomore

[ ] Junior

[ ] Senior

Ethnicity Information

Please select your ethnicity:

[ ] White/Caucasian

[ ] Hispanic

[ ] International

[ ] Asian

[ ] Multiethnic

[ ] African-American

[ ] Native Hawaiian or Pacific Islander

[ ] Other

[ ] Unknown

[ ] I do not wish to share my ethnicity

1) Do you currently have any of the following disabilities (either self-identified or identified by a medical professional):

__ Yes __No

2) If you selected yes, please select the disability/ies you identify as having below (Please see definitions at the following link: https://www.parentcenterhub.org/categories/#ed) if you have any questions or need clarification.

If you do NOT have a disability, please click here X

You are considered to have a disability if you have a physical or mental impairment or medical condition that substantially limits a major life activity, or if you have a history or record of such an impairment or medical condition. *Disabilities include, but are not limited to:*

[ ] Autism Spectrum Disorder

[ ] Deaf-Blindness

[ ] Deafness

[ ] Emotional Disturbance

[ ] Hearing Impairment

[ ] Intellectual Disability

[ ] Multiple Disabilities

[ ] Orthopedic Impairment

[ ] Other Health Impairment

[ ] Specific Learning Disability

[ ] Speech or Language Impairment

[ ] Traumatic Brain Injury

[ ] Visual Impairment, including Blindness

[ ] Other: _____

Part 2: Food Security Questionnaire

Below are several statements that people have made about their food situation. For these statements, please check whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months.

1) "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or true for (you/your household) in the last 12 months?

[ ] Often true

[ ] Sometimes true

[ ] Never true

[ ] DK or Refused

2) "(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true

[ ] Sometimes true

[ ] Never true

[ ] DK or Refused

3) In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

[ ] Yes

[ ] No

[ ]Don't Know

4) How often did this happen—almost every month, some months, but not every month, or in only 1 or 2 months?

[ ] Almost every month

[ ] Some months but not every month

[ ] Only 1 or 2 months

[ ] Don't Know

5) In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes

[ ] No

[ ] Don't Know

6) In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?

[ ] Yes

[ ] No

[ ] Don't Know

Part 3: Housing Questionnaire

Below are several statements that people have made about their housing situation. For these statements, please check yes, no, or don't know for (you/your household) in the last 12 months.

7) Was there any time when you did not pay the full amount of the rent of mortgage?

[ ] Yes

[ ] No

[ ] Don’t Know

8) Were you evicted from your home for not paying the rent or mortgage?

[ ] Yes

[ ] No

[ ] Don’t Know

9) Was there any time when you did not pay the full amount of gas, oil, or electricity bills?

[ ] Yes

[ ] No

[ ] Don’t Know

10) Did you move in with other people even for a little while due to financial problems?

[ ] Yes

[ ] No

[ ] Don’t Know

11) Did you stay at a shelter, in an abandoned building, a car or any other place not meant for regular housing even for one night?

[ ] Yes

[ ] No

[ ] Don’t Know

12) Did you borrow money from friends to help pay bills?

[ ] Yes

[ ] No

[ ] Don’t Know

Part 4: Course Completion Rates

13) How many courses did you REGISTER for in Fall 2023: ____

14) How many courses did you COMPLETE <u>with</u> an A, B, or C grade in Fall 2023? ____

APPENDIX C: U.S. Household Food Security Survey Module: Six-Item Short Form

HH3. I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

"The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or true for (you/your household) in the last 12 months?

[ ] Often true

[ ] Sometimes true

[ ] Never true

[ ] DK or Refused

HH4. "(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true

[ ] Sometimes true

[ ] Never true

[ ] DK or Refused

AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

[ ] Yes

[ ] No (Skip AD1a)

[ ] DK (Skip AD1a)

AD1a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months, but not every month, or in only 1 or 2 months?

[ ] Almost every month

[ ] Some months but not every month

[ ] Only 1 or 2 months

[ ] DK

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes

[ ] No

[ ] DK

AD3. In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?

[ ] Yes

[ ] No

[ ] DK

User Notes

(1) Coding Responses and Assessing Households' Food Security Status:

Responses of "often" or "sometimes" on questions HH3 and HH4, and "yes" on AD1, AD2, and AD3 are coded as affirmative (yes). Responses of "almost every month" and "some months but not every month" on AD1a are coded as affirmative (yes). The sum of affirmative responses to the six questions in the module is the household's raw score on the scale.

Food security status is assigned as follows:

- Raw score 0-1—High or marginal food security (raw score 1 may be considered marginal food security, but a large proportion of households that would be measured as having marginal food security using the household or adult scale will have raw score zero on the six-item scale)
- Raw score 2-4—Low food security
- Raw score 5-6—Very low food security

For some reporting purposes, the food security status of households with raw score 0-1 is described as food secure and the two categories “low food security” and “very low food security” in combination are referred to as food insecure.

APPENDIX D: Fragile Families and Childhood Wellbeing 6 Item Housing Questionnaire

1) Was there any time when you did not pay the full amount of the rent of mortgage?

   []YES

   [] NO

   [] DON'T KNOW/REFUSED TO ANSWER

2) Were you evicted from your home for not paying the rent or mortgage?

   []YES

   [] NO

   [] DON'T KNOW/REFUSED TO ANSWER

3) Was there any time when you did not pay the full amount of gas, oil, or electricity bills?

   []YES

   [] NO

   [] DON'T KNOW/REFUSED TO ANSWER

4) Did you move in with other people even for a little while due to financial problems?

   []YES

   [] NO

   [] DON'T KNOW/REFUSED TO ANSWER

5) Did you stay at a shelter, in an abandoned building, a car or any other place not meant for regular housing even for one night?

   []YES

   [] NO

   [] DON'T KNOW/REFUSED TO ANSWER

6) Did you borrow money from friends to help pay bills?

[]YES

[] NO

[] DON’T KNOW/REFUSED TO ANSWER

Classification:

0 affirmative answers = Housing stability

1 or more affirmative answers = Housing instability

APPENDIX E: IRB Approval

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

November 6, 2023

Ashleigh King
Jason Cheek

Re: IRB Exemption - IRB-FY23-24-500 BASIC NEEDS FULFILLMENT AND COURSE COMPLETION RATES FOR ONLINE UNIVERSITY STUDENTS WITH DISABILITIES: A QUANTITATIVE, NON-EXPERIMENTAL, CAUSAL-COMPARATIVE STUDY

Dear Ashleigh King, Jason Cheek,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;

For a PDF of your exemption letter, click on your study number in the My Studies card on your Cayuse dashboard. Next, click the Submissions bar beside the Study Details bar on the Study details page. Finally, click Initial under Submission Type and choose the Letters tab toward the bottom of the Submission Details page. Your information sheet and final versions of your study documents can also be found on the same page under the Attachments tab.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,
G. Michele Baker, PhD, CIP
Administrative Chair
Research Ethics Office

APPENDIX F: Permission from University

November 28, 2023

Ashleigh King

Clinical Associate Professor

Arizona State University

Arizona State University

1050 S Forest Mall

Tempe, AZ

85281

Dear Ashleigh King,

After careful review of your research proposal entitled *Basic Needs Fulfillment and Course Completion Rates for Online University Students with Disabilities: A Quantitative, Non-Experimental, Causal-Comparative Study*, your survey is qualified and meets the requirements for administration. You are therefore granted permission to conduct your research study with Mary Lou Fulton Teacher College students at Arizona State University.

Check the following boxes, as applicable:

☒ [[I/We] grant permission for Ashleigh King to contact Mary Lou Fulton Teachers College students at ASU to invite them to participate in her research study.]

☐ [[I/We] are requesting a copy of the results upon study completion and/or publication.]

Sincerely,

Mark F. McCain

Director, Data Strategy and Compliance

Mary Lou Fulton Teachers College-Arizona State University

APPENDIX G: Recruitment Letter

Dear Student,

As a doctoral candidate in the School of Education at Liberty University, I am conducting research as part of a Ph.D. in Special Education. The purpose of my research is to develop a greater understanding of how disability, food insecurity, and housing insecurity can intersect and impact college students' course completion rates. I am writing to invite you to join my study.

Participants must be 18 years of age or older, an online undergraduate college student, and self-identify as having a disability. Participants will be asked to take an anonymous, online survey. It should take approximately 10 minutes to complete the procedure listed. Participation will be completely anonymous, and no personal, identifying information will be collected.

To participate, please click here Online Survey to complete the online survey.

A consent document is provided on the first page of the survey. The consent document contains additional information about my research. After you have read the consent form, please click the continue button to proceed to the survey. Doing so will indicate that you have read the consent information and would like to take part in the study.

Sincerely,

Ashleigh King

Clinical Associate Professor

Email: [redacted]

APPENDIX H: Consent

Consent

Title of the Project: *Basic Needs Fulfillment and Course Completion Rates for Online University Students with Disabilities: A Quantitative, Non-Experimental, Causal-Comparative Study*

Principal Investigator: Ashleigh King, Doctoral Candidate School of Education, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be 18 years of age or older and an online undergraduate college student. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to identify if and how course completion rates are impacted by food and/or housing insecurity for students who self-identify as having a disability.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following:

1. Participate in a survey that will take no more than ten minutes

How could you or others benefit from this study?

No Direct Benefits: Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include a greater understanding for colleges about how disability, food insecurity, housing insecurity, and course completion can intersect and impact students.

What risks might you experience from being in this study?

Option 2: Minimal risk, but the possibility of psychological stress exists. The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life. The risks involved in this study include the possibility of psychological stress from being asked to recall and discuss prior trauma. To reduce risk, the survey will not include questions that ask for follow-up. All questions will be multiple-choice. Additionally, you may discontinue the survey at any time.

How will personal information be protected?

The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be anonymous.
- Data will be stored on a password-locked computer.
- After 3 years, all electronic records will be deleted

Is the researcher in a position of authority over participants, or does the researcher have a financial conflict of interest?

Option 1: Professional/Grading Authority: The researcher serves as a clinical associate professor at Arizona State University. To limit potential or perceived conflicts, data collection will be anonymous, so the researcher will not know who participated. This disclosure is made so that you can decide if this relationship will affect your willingness to participate in this study. No action will be taken against an individual based on his or her decision to participate or not participate in this study.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University or Arizona State University. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Ashleigh King. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [redacted]. You may also contact the researcher's faculty sponsor, Dr. Jason Cheek, at [redacted].

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA, 24515; our phone number is 434-592-5530, and our email address is irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Anonymous Survey Research: Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records.] If you have any questions about the study later, you can contact the researcher using the information provided above.