AN EXPLORATORY STUDY ON INSTITUTIONAL BELONGING AND ITS EFFECTS ON MENTAL HEALTH OUTCOMES AND ACADEMIC SUCCESS

by

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The following individuals read and discussed the thesis submitted by student William Cooney, and they evaluated his presentation and response to questions during the final oral examination. They found that the student passed the final oral examination.

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DEDICATION

This thesis is dedicated to the ones who inspired and supported me throughout my life.

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ABSTRACT

BACKGROUND

Belonging in higher education is a growing field of research, however there is limited available literature. Institutional belonging encompasses many factors of the college campus environment such as social relationships, extra-curricular activities, academics, institutional support and how they affect a college student's sense of belonging (Hausmann et al., 2007). The purpose of this exploratory study is to further understand institutional belonging and its relationships with mental health and academic success.

METHODS

This study utilized data from the ACHA-NCHA III, Spring 2020 survey that was randomly given to undergraduate and graduate students (N=5,000) attending a Northwest regional state university. The dataset was used to assess if institutional belonging is associated with GPA and three mental health outcomes: stress, psychological well-being, and loneliness. Additionally, the dataset was used to assess if GPA is associated with the three mental health outcomes and if institutional belonging moderates this association. The dataset was analyzed using multiple methods including MANOVA, ANOVA, ANCOVA, and Multiple Regression.

RESULTS

Institutional belonging was significantly associated with all three mental health outcomes: stress, psychological well-being, and loneliness. Furthermore, institutional

belonging was significantly associated with GPA. These two relationships remained significant after including the covariates: first-generation status and biological sex. GPA was significantly associated with psychological well-being and belonging did not significantly moderate this relationship.

CONCLUSIONS

Institutional belonging had a significant effect on mental health and academic success. Although institutional belonging did not have a moderating effect on the relationship between GPA and the mental health outcomes, this study still presents implications for the use of institutional belonging in early intervention programs on college campuses. Implications for future public health practices and future research are also discussed.

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LIST OF ABBREVIATIONS

ACHA	American College Health Association
ACHA-NCHA III	American College Health Association-National College Health Association Assessment Version III
GPA	Grade Point Average
HBCU	Historically Black Colleges and Universities
PWB	Diener Flourishing Scale – Psychological Well-Being
PWC	Primarily White College

CHAPTER I: INTRODUCTION

Background

Maslow (1943) theorized that human motivation is based on a hierarchy of needs divided into five sets of goals called basic needs with the third goal the need to belong. Building on Maslow's theory, Baumeister and Leary (1995) developed the Theory of Belongingness that states humans have a fundamental motivation to fulfill a need to belong. Additionally, the Theory of Belongingness argues that depriving a person of the need to belong will cause adverse harm to both physical and mental health (Baumeister & Leary, 1995).

Research on the effects of belonging on college students is an emerging field with limited available literature and many measures of belonging have been adapted from K-12 belonging studies for higher education (Slaten et al., 2018). The sense of belonging for a college student comes in many forms: academic, social, institutional, etc. Institutional belonging is the sense of belonging a college student feels toward the college or university and includes many aspects of college life such as peer friendships, faculty relationships, extra-curricular involvement, and the campus environment (Hausmann et al., 2007).

A growing area of belonging research in higher education is in the area of mental health and how it relates to a student's sense of belonging. Students who reported a higher sense of belonging to a university had better mental health outcomes (Thompson et al., 2019). For example, adolescent college students who felt like they belonged in

college reported lower stress and anxiety levels (Raque-Bogdan et al., 2011). In addition to better mental health outcomes, a higher sense of belonging is associated with more meaningful friendships that can improve the psychological well-being of college students as they adjust to college (Pittman & Richmond, 2008). Institutional belonging can function as a moderator of perceived stress, depression, and anxiety to have a positive mental health outcome (Civitci, 2015; Thompson et al., 2019).

The majority of the published literature on belonging examines the relationship between a sense of belonging and academic success. In general, the literature found a positive correlation with a student's sense of belonging and academic success (Gillen-O'Neel, 2021; Pittman & Richmond, 2007; Slaten et al., 2018). For example, college students with a higher sense of belonging are more likely to participate in class, be more engaged in class, and have more positive experiences leading to better academic outcomes (Freeman et. al., 2007; Gillen-O'Neel, 2021; Wilson et al., 2015). Additionally, college students with a higher sense of belonging have higher GPAs and are more likely to persist towards obtaining their degree (Slaten et al., 2018).

State of the Problem

In the United States over one-third of college students drop out of school for various reasons before the start of their second year and the rate is higher among minority students (Pittman & Richmond, 2007; Strayhorn et al., 2016). Some of the reasons for students dropping out of college are lack of academic success, poor mental health, and/or a low sense of belonging. For example, a college student who does not feel like they belong at an institution is likely to have a negative perception of the campus climate and withdraw from the institution (Amodeo et al., 2020). Furthermore, students who reported

a lower sense of belonging had worse mental health outcomes, which increases the risk of them dropping out (Gopalan & Brady, 2020; Slaten et al., 2018).

Purpose

Institutional belonging among college students plays an important role in students' academic success. Students with higher institutional belonging are more likely to be engaged in the classroom and in their academic studies (Gillen-O'Neel, 2021; Wilson et al., 2015). Moreover, students with a higher sense of belonging are more likely to engage and relate to their classmates, have positive interactions with faculty, and better integrate academically (Hausmann et al., 2007; Zumbrunn et al., 2014). Finally, student persistence towards a degree and graduation rates are higher among students with a higher sense of belonging (Slaten et al., 2018).

The other benefit of improving institutional belonging among college students is better mental health outcomes (Pittman & Richmond, 2007). For example, stress is a chronic problem on college campuses that reduces mental health outcomes, however those who have a higher sense of institutional belonging have lower stress levels (Thompson et al., 2019; Raque-Bogdan et al., 2011). Institutional belonging has also been shown to be associated with the development of positive and healthier social relationships that can better support the psychological well-being of students, especially during difficult times (Pittman & Richmond, 2008). Furthermore, healthy social relationships buffer against loneliness in college students and reduce the risk of adverse mental health outcomes (Lee & Goldstein, 2016). Overall, college students with high levels of institutional belonging are less stressed, less lonely, and have better psychological well-being.

Rationale

A bachelor's degree provides people with better socioeconomic opportunities and leads to better physical and mental health outcomes. According to the U.S. Bureau of Labor Statistics (2021), in 2020 the median weekly earnings for a person with a bachelor's degree was $1,305 compared to $781 for a person with a high school diploma. Additionally, the estimated unemployment rate for workers with bachelor's degrees was 5.5% versus 9.0% for workers with high school diplomas (U.S. Bureau of Labor Statistics, 2021). Overall health and life expectancy for college graduates are better than high school graduates (Trostel, 2017). Depression is the most common mental health illness, however educational attainment reduces the risk of depression (Cohen et al., 2020).

This exploratory study seeks to further understand how institutional belonging can be used as an early intervention point to prevent adverse mental health outcomes and improve academic success on college campuses for all students. Furthermore, this study seeks to demonstrate that the ACHA-NCHA III survey could be used as a measure of institutional belonging to support early intervention research on college campuses. There is limited research on the role institutional belonging plays in helping students transition from high school to the college environment. Additional research is needed to further understand how institutional belonging can support students that face additional barriers to success in higher education such as race/ethnic minorities, sexual/gender minorities, working-class, transfer students, and first-generation students (Amodeo et al., 2020; Stebleton et al., 2014a; Strayhorn et al., 2015). As an intervention point, institutional

belonging could increase the likelihood a student will complete their degree with better mental health outcomes and a higher chance of success in the next phase of their life.

Research Questions

The purpose of this study is to further understand the relationship between institutional belonging, academic success, and the mental health outcomes of students.

Research Question #1: What is the relationship between college students' institutional sense of belonging and their mental health outcomes?

Sub Question #1: Is this relationship impacted by first-generation status?

Sub Question #2: Is this relationship impacted by biological sex?

Research Question #2: What is the relationship between college students' institutional sense of belonging and their GPA?

Sub Question #1: Is this relationship impacted by first-generation status?

Sub Question #2: Is this relationship impacted by biological sex?

Research Question #3: Do mental health factors impact GPA and does institutional belonging moderate this relationship?

Definition of Terms

- Institutional belonging: the psychological sense that one is a valued member of the college community (Hausmann et al., 2007).
- First-year student: a traditional student who is in their first academic year at a four-year institution (Pittman & Richmond, 2007)
- First-generation college student: a student who does not have a parent/guardian who completed a bachelor's degree (Stebleton et al., 2014a).

- Traditional student: a student who attends college right out of high school.
- Non-traditional student: a student who does not attends college right out of high school.
- Transfer student: a student transferring from another institution, usually a 2-year institution.
- Continuing-generation college student: a student who has at least one parent who has completed a bachelor's degree (Stebleton et al., 2014a).
- Mental Health: a state of mind characterized by emotional well-being, good behavioral adjustment, relative freedom from anxiety and disabling symptoms, and a capacity to establish constructive relationships and cope with the ordinary demands and stresses of life (American Psychological Association, 2020).
- Loneliness: a negative affective state on how an individual perceives deficiencies in their network of social relationships (Russell et al., 1984).
- Stress: the physiological or psychological response to internal or external stressors (American Psychological Association, 2020).
- Psychological Well-being: the self-perceived success of the health of social relationships and feeling of a purpose and meaning in life (Diener et al., 2010).

Study Limitations and Rationale

There are several study limitations that prevent the generalizability of this study. This study was based on secondary data analysis from questions that were already asked without our input. It was a cross-sectional study of a single survey given in the

Spring 2020 semester before the COVID-19 pandemic and there is a lack of longitudinal data from previous surveys due to Spring 2020 being the first year the ACHA-NCHA III survey was used at this institution. Additionally, data were collected from a single Northwest regional state university with a majority white and homogeneous student population. Lastly, a low response rate (14.9%) and small sample size (743) limit the generalizability of this study.

Summary

Institutional belonging is important because of its relationship with academic success and mental health outcomes. Students with higher institutional belonging are more likely to have better academic success and graduate with a bachelor's degree. College graduates earn more money and are healthier than those who do not have a bachelor's degree. However, college students continue to drop out at a high rate with many feeling they do not belong at their institution. In order to get students to graduate and have better mental health outcomes, colleges and universities need to increase institutional belonging by creating a more friendly and welcoming campus environment, provide students with opportunities to interact and build relationships with peers and faculty, and support students' mental health needs.

CHAPTER II: LITERATURE REVIEW

Introduction

Chapter II will define institutional belonging and explore its impact on college students. Furthermore, this chapter will examine the contextual factors that affect belonging: identity, student status, external and environmental factors, and institutional factors. Additionally, a deeper analysis of the literature on belonging will focus on its relationship to academic success and mental health. The relationship between belonging and mental health will center on three categories: stress, psychological well-being, and loneliness.

Belonging

Belonging is defined as a need to establish and maintain stable social relationships (Baumeister & Leary, 1995). At the K-12 level, belonging has been extensively studied, however at the university level, belonging is a relatively new area of research. Furthermore, at the university level, belonging is not well-defined and depends on the focus of the research study (Stebleton et al., 2014a). As a consequence, in the research literature belonging has been categorized in many contexts: school, institution, social, academic, etc.

Due to the emerging nature of belonging research in higher education the literature varies on methods of measuring belonging. One of the reasons for the variety in measurement parameters is the lack of a validated measure of belonging at the university level, on the other hand in the more studied K-12 population, the methods of

measuring belonging are well-validated (Slaten et al., 2018). Because of the validation of K-12 belongingness scales many researchers have adapted these questions for higher education. For example, instead of asking about the relationship with your *teacher*, the teacher is changed to *professor* (Slaten et al., 2018). Slaten et al. (2018) sought to create a validated scale to accurately measure belonging at the university level by performing two studies with the first to validate the parameters and the second to confirm reproducibility. Their results focused on three subgroups of belonging; university affiliation, university support and acceptance, and faculty and staff relations laying the foundation for future validation research (Slaten et al., 2018).

Attachment and mattering have sometimes been confused with belonging because of their similar focus on relationships. Attachment, according to Bowlby's attachment theory, is that all relationships are derived from the need for a child to form an attachment relationship with its mother (Baumeister & Leary, 1995). However, belonging is the need to form a minimum number of relationships derived from social contact and not a specific type of relationship (Baumeister & Leary, 1995). Additionally, mattering is about how a person perceives others' acceptance of them in the relationship (Raque-Bogdan et al., 2011).

Contextual Factors for Belonging

There are many contextual factors that could affect a college student's sense of belonging: identity, student status, external and environmental, and institutional factors.

Identify Factors

On many college campuses there is a diverse student body with students from many backgrounds and it is those demographics that have a role in their sense of

belonging. Some of these demographic populations are at a higher risk of low levels of belonging such as ethnic and racial minorities, first-generation, first-year, and rural students as well as students from lower socioeconomic backgrounds (Morton et al., 2018, Gopalan & Brady, 2020). In a nationally representative survey, under-represented minorities and first-generation students had a lower sense of belonging than white and continuing-generation students (Gopalan & Brady, 2020).

Race and ethnicity are major factors in a student's level of belonging. For example, male black students at a Historically Black College and University (HBCU) were more likely to report higher levels of belonging than those attending a Primarily White College (PWC) (Strayhorn et al., 2015). Moreover, black female athletes at HBCUs reported HBCUs provided them with a better sense of belonging than if they had attended a PWC (Cooper & Newton, 2021). Native American college students are severely underrepresented in higher education with one of the lowest five-year completion rates at 39% among all races and were shown to have a lower sense of belonging than their black and white peers (Strayhorn et al., 2016). Latinx students experience similar issues of discrimination and alienation as Native American and black students which can lead to a lower sense of belonging (Hurtado & Carter, 1997).

Currently, there is a growing focus on gender and sexual orientation as demographic factors in belonging (Parker, 2021). However, there is a tendency for researchers to group all LGBTQ students as one group and not as individual demographic groups (Parker, 2021). Many sexual minority students tend to be marginalized on campus and have more mental health problems, lower academic success, and a higher dropout rate than heterosexual students (Amodeo et al., 2020).

Student Status

The first year starting at a new institution can be a difficult transition for many college students and can be a significant factor in affecting their sense of institutional belonging. The dropout rate tends to be the highest among first-year students who have a lower sense of institutional belonging (Pittman & Richmond, 2007). First-year students are transitioning into a new environment on a college campus and many are living on their own for the first time (Pittman & Richmond, 2007). An often overlooked group is transfer students who are transitioning from a 2-year institution to a 4-year institution and have to adjust to a different set of structural barriers that redefine their sense of belonging (Gopalan & Brady, 2020).

A student is considered first-generation if neither parent earned a bachelor's degree (Stebleton et al., 2014a). First-generation students are more likely to come from lower socioeconomic households and have a higher dropout rate after the first year than continuing-generation students (Stebleton et al., 2014a). Many continuing-generation students rely on the previous generation's collegiate experiences to help them to transition and integrate into college life, which first-generation students lack (Swanbrow Becker et al., 2017). Institutional belonging is lower among first-generation students than continuing-generation students and some of the reasons for this are living off-campus, lack of cultural or familial knowledge of college norms, and lower socioeconomic background (Stebleton et al., 2014a; Duran et al., 2020).

External and Environmental Factors

Geographical and socioeconomic backgrounds have been shown to influence belonging at the college level. Rural high school students tend to grow up in close-knit

communities with a strong sense of belonging creating an obligation to stay and work in the community after graduating high school (Morton et al., 2018). Additionally, rural high school students worry about socially integrating within the college community such as having a social life and relating to other students (Morton et al., 2018). Working-class and low-income students have a higher dropout rate than students from higher socioeconomic backgrounds (Ostrove & Long, 2007). Moreover, minority low-income students face barriers to belonging because of cultural ideals of who belongs at certain types of institutions (Ostrove & Long, 2007).

Social relationships such as family and friends play an important role in a student's sense of institutional belonging. Parental support can be protective factor of institutional belonging in first-year students during their first semester, however there is a correlation between increased parental support and a decrease in a student's sense of belonging in the second semester (Hausmann et al., 2007). Involvement in extracurricular activities that develop peer relationships has a positive relationship with institutional belonging (Ribera et al., 2017). For example, students who are involved in Greek life or student campus organizations reported higher levels of belonging (Ribera et al., 2017). Furthermore, the quality of peer relationships and the relationship between student and faculty are associated with a sense of belonging (Pittman & Richmond, 2008). Students who worked with faculty on research projects had higher institutional belonging (Ribera et al., 2017). In the classroom, students are more likely to report a higher sense of belonging when faculty engage their students (Hausmann et al., 2007).

Institutional Factors

The type of institution does affect a student's sense of institutional belonging. For example, black students attending HBCUs report feeling a higher sense of belonging than black students at PWC (Strayhorn et al., 2015). Another difference in institutional belonging is between 2-year and 4-year institutions where the overall sense of belonging at 4-year institutions was found to be higher than at 2-year institutions (Gopalan & Brady, 2020). However, women, underrepresented minorities, and first-generation students report higher levels of institutional belonging compared to males, whites/Asians/multiracial, and continuing-generation students at 2-year institutions, whereas it was the opposite at 4-year institutions (Gopalan & Brady, 2020). Wilson et al. (2015) found institutional belonging varied across five types of 4-year institutions: an HBCU (4,000 students), a Private/Faith-Based Pacific Northwest institution (4,000 students), a large research institution in the Pacific Northwest (43,000+ students), a medium-sized teaching institution with a Midwest regional student population (15,000 students), and a small Northeast women's college.

Another institutional factor is the campus climate and how a student perceives it. Students that negatively perceive the campus climate are more likely to consider dropping out because of an unwelcoming environment (Amodeo et al., 2020). Frequent exposure to threats and harm on campus can lower levels of belonging in students (Thompson et al., 2019). Institutional involvement in the campus climate has been shown to mediate students' sense of belonging (Hausmann et al., 2007). Additionally, the campus climate was a predictor of the institutional sense of belonging in immigrant students (Stebleton et al., 2014b).

Mental Health and Belonging

Recently, more attention is being given to improving mental health for college students resulting in increased interest in the relationship between sense of belonging and mental health outcomes. Gopalan and Brady (2020) found a student's sense of belonging has a positive relationship with mental health outcomes. However, there remains limited research into the role belonging plays in mediating mental health outcomes as compared to the relationship between belonging and academic success.

Stress

College is a stressful time for students, many of whom are at risk of developing adverse mental health outcomes due to high stress levels. A mediating factor for stress levels is a student's sense of belonging. For example, an inverse relationship between institutional belonging and perceived stress was found among Doctor of Nursing Practice (DNP) students (Reilly & Fitzpatrick, 2009). Although the mean age of the sample population of DNP students was 46 years, their perceived stress levels were comparable to traditional students' scores (Reilly & Fitzpatrick, 2009). Additionally, among a large sample (N=2,094) of undergraduate students, inclusion belonging (feeling part of a group) had a significant inverse relationship with stress whereas rejection belonging (feeling like an outsider in a group) had a significant positive relationship with stress (Moeller et al., 2020). Another example is higher sense of belonging levels were a mediating factor in stress levels of female students who experience physical and/or verbal abuse from an intoxicated student (Thompson et al., 2019).

High levels of stress have been associated with negative mental health outcomes such as depression, anxiety, lack of quality sleep, and lower self-esteem (Thompson et

al., 2019). However, those college students with a higher sense of belonging have lower stress levels and better life satisfaction (Civitci, 2015). Similarly, college students with higher levels of mattering had lower levels of depression and stress (Raque-Bogdan et al., 2011). Moreover, college students with a higher sense of belonging tend to not internalize behavioral problems that have the potential to increase stress levels and lead to negative mental health outcomes (Pittman & Richmond, 2008). In a quality of sleep study, it was found that stress and belonging were associated with the quality of sleep (John-Henderson et al., 2019).

Additionally, at-risk student populations have the added stress of overcoming barriers of discrimination, lower socioeconomic status, and culture shock (Stebleton et al., 2014a). Because of these barriers, at-risk students have lower levels of belonging and higher stress levels leading to worse mental health outcomes. For example, first-generation students reported feeling more stress and lower levels of belonging than continuing-generation students (Stebleton et al., 2014a). However, under-represented minority students with higher levels of belonging are more likely to be resilient at managing stress (Wright et al., 2021).

Psychological Well-being

Psychological well-being is a broad term that in the literature is not well defined and varies by discipline (Yamaguchi, 2015). Generally psychological well-being encompasses relationships, self-esteem, purpose, and optimism (Diener et al., 2010). The Diener Flourishing Scale – Psychological Well-Being (PWB) attempts to standardize well-being measures by incorporating numerous well-being theories into their scale (Diener et al., 2010). In college belonging research, psychological well-being is a term

that encompasses peer relationships, faculty and staff relationships, extra-curricular activities, campus environment, and managing mental health problems.

In many situations, the relationship between institutional belonging and psychological well-being in college students leads to better mental health outcomes. For example, students with a higher sense of belonging were shown to perform better academically and have a higher self-worth (Pittman & Richmond, 2007). Among first-year students those who were more social with students and faculty at the beginning of their first semester were more likely to have a higher sense of belonging (Hausmann et al., 2007). However, Strayhorn et al. (2015) found no relationship between belonging and psychological well-being among black male college students, although the authors noted this could be due to the small sample population. On the other hand, black female athletes attending HBCUs reported higher sense of belonging and better self-esteem because of the supporting campus community (Cooper et al., 2021).

Peer relationships play a prominent role in the college experience and a student's sense of belonging is a determining factor in the quality of friendships and the resulting mental health outcomes. Students with higher sense of institutional belonging levels are more likely to have better quality friendships and rely on their support networks in times of stress and anxiety (Pittman & Richmond, 2008). Additionally, Thompson et al. (2019) found 89% of participants had experienced at least one harmful event from another person's alcohol consumption (secondhand harm) with female students reporting significantly more events than males. Furthermore, the results showed students who had a lower their sense of belonging also had higher levels of depression and anxiety when exposed to secondhand harm events, (Thompson et al., 2019). Students who have a

strong sense of belonging and peer support are better adjusted to the campus environment and have better psychological well-being (McBeath et al., 2018).

Social stigma around mental health influences psychological well-being and institutional belonging. Students diagnosed with a mental health illness who feel personal and/or group discrimination tend to have a lower sense of belonging on campus, which leads to lower well-being (Elliott & Doane, 2015). Gopalan and Brady (2020) found that among first-year college students, there was a positive association between belonging and seeking the use of campus and mental health services. First-generation students have lower levels of belonging and are less likely to seek out mental health services than continuing-generation students (Stebleton et al., 2014a).

At-risk demographic populations encounter greater challenges to institutional belonging and their psychological well-being on campus. Racial minorities on college campuses face additional racial barriers to psychological well-being such as discrimination and racial stereotyping (Strayhorn et al., 2015). Furthermore, sexual minorities viewed the campus climate more negatively and had higher rates of anxiety and depression (Amodeo et al., 2020). Another at-risk population is first-generation students, who can have difficulty adjusting to the campus environment because of a low sense of belonging (Museus & Chang, 2021).

Loneliness

The relationship between a sense of belonging and loneliness or social isolation in college students is not well researched. Loneliness is a negative affective state on how an individual perceives deficiencies in their network of social relationships (Russell et al., 1984). Additionally, if loneliness is not addressed it can lead to depression and other

mental health problems (Diehl et al., 2018). Diehl et al. (2018) found about one-third of university students were experiencing moderate to severe loneliness. Peer social support buffered against loneliness in college students, however familial support was not a buffer against loneliness (Lee & Goldstein, 2016).

For college students, one of the most vulnerable times for developing loneliness is during their initial semester when they are transitioning to a new environment and establishing their social support network (Worsley et al., 2021). Worsley et al. (2021) found students living in university housing developed loneliness because of the lack of expected quantity of friendship and lack of bonding with other students in the dormitory. A student's sense of belonging has been associated with friendship quality and supportive relationships (Pittman & Richmond, 2008). Pittman & Richmond (2008) reported students with a higher sense of belonging have better quality peer relationships and have better mental health outcomes.

Institutional belonging, like loneliness, is associated with mental health outcomes (Hagerty & Williams, 1999). However, institutional belonging is positively associated with mental health outcomes (Civitci, 2015; Øverup et al., 2017), whereas loneliness is negatively associated with mental health outcomes (Diehl et al., 2018). For example, higher levels of belonging are associated with lower levels of depression (Civitci, 2015; Øverup et al., 2017). Additionally, institutional belonging is a mediating factor of attachment anxiety and avoidance, which can lead to social isolation and depression (Øverup et al., 2017). Although there is limited research on the relationship between institutional belonging and loneliness, the literature indicates institutional belonging

could have a mediating relationship with loneliness, similar to depression and other mental health outcomes.

Belonging and Academic Success

The relationship between belonging and academic success is the focus of most of the research literature on belonging at the university level. The two main measures of academic success are grade point average (GPA) and graduation rates (Gillen-O'Neel, 2021). In addition to better grades, belonging has been shown to correlate with higher retention and graduation rates along with being an independent factor of student persistence (Slaten et al., 2018). It is estimated about one-third of the student population does not complete their degree with a majority of them dropping out in their first year (Pittman & Richmond, 2007). Furthermore, first-generation students dropped out after their first year at a rate four times higher than continuing-generation students (Stebleton et. al., 2014a). Academic integration among first-year students is positively associated with the rate of change in a student's sense of belonging over the academic year (Hausmann et al., 2007). The most studied aspects of belonging that contribute to academic success are in the classroom and the institution (Wilson et al., 2015).

Student Engagement/Classroom Belonging

A problem with using GPA and graduation rates as measures of academic success is that they are reported only at the end of the class or once the student graduates (Gillen-O'Neel, 2021). On the other hand, *student engagement* is multidimensional and capable of measuring daily actions that provide a better measure of the relationship between belonging and academic success (Gillen-O'Neel, 2021). The two main dimensions of student engagement are *emotional engagement* and *behavioral engagement* (Gillen-

O'Neel, 2021). Emotional engagement focuses on the emotional reactions to school such as a student's eagerness or boredom in engaging with academic challenges (Gillen-O'Neel, 2021). Behavioral engagement focuses on behaviors both in and out of the classroom such as class participation and study habits (Gillen-O'Neel, 2021).

Emotional engagement in a classroom setting produces either positive or negative engagement, however, belonging influences these engagements (Wilson et al., 2015). Those students with high levels of class belonging reported significantly greater positive engagements than those students with lower levels of class belonging (Wilson et al., 2015). A student's major belonging enhanced their positive engagement in the classroom, especially when the class was in their major (Wilson et al., 2015). Overall, students with a higher sense of belonging have better academic self-efficacy (Gillen-O'Neel, 2021).

The relationship between classroom belonging and behavioral engagement has been shown to have a positive effect on academic success outcomes. One of these positive effects is that students with higher levels of belonging procrastinate less than those with lower levels of belonging (Zumbrunn et al., 2014). Another positive effect is students with a higher sense of belonging are more likely to be engaged in the classroom and are more personally motivated to participate (Freeman et. al., 2007). Additionally, students who report a higher sense of class belonging are more likely to participate in class discussion (Wilson et al., 2015). First-generation students engage more in class on days when they have a higher sense of belonging, but continuing-generation students do not (Gillen-O'Neel, 2021).

External factors such as the professor, classmates, and type of class (in-person, remote, online) affect a student's sense of belonging in the classroom. Students with a higher sense of belonging have better relationships with classmates, although it may only be a small section and not the entire class that they relate to (Zumbrunn et al., 2014). For example, a student in a class of 25 students may have a sense of belonging with the students sitting next to him, but not those sitting across the room. Also, having a passionate professor that is able to engage students in meaningful interactions increases belonging (Freeman et al., 2007, Zumbrunn et al., 2014). Moreover, positive faculty interactions for first-year students helps to increase students' sense of belonging and improve academic integration (Hausmann et al., 2007). In the case of working-class students, they tend to have lower levels of belonging compared to middle/upper class students, which is a barrier to developing relationships with faculty and students (Soria & Stebleton, 2013). Students that are more engaged in learning tend to have higher grades and develop a greater personal interest in learning the course material (Zumbrunn et al., 2014).

An argument against the relationship between belonging and academic success is better grades are the main reason for higher engagement and participation in the classroom. However, after controlling for GPA, students with a higher sense of belonging were more confident in their academic success (Freeman et al., 2007). The need to belong establishes group obligations and the fear of the relationship ending, especially on bad terms (Baumeister & Leary, 1995), which is why GPA alone might not be enough for a student to succeed in the classroom. In addition, students drop out of

college for many reasons and GPA alone is not enough to keep students from dropping out (Slaten et al., 2016).

Institutional Belonging

Institutional belonging at the college level is an important part of student success and persistence towards a degree (Freeman et al., 2007). Students with a low sense of belonging had a negative perception of the campus climate, which increased the likelihood they will consider leaving the university (Amodeo et al., 2020). In a national study, race or first-generation status did not influence persistence, although institutional belonging influences persistence across all demographic groups (Gopalan & Brady, 2020). Native American students have one of the lowest levels of institutional belonging because of marginalization and a lack of cultural understanding by the institution, resulting in lower academic success and persistence (Tachine et al., 2017). However, some students, such as sexual minority students, who have a negative sense of belonging to their university find a positive sense of belonging within the departments of their academic majors (Amodeo et al., 2020).

Parental support at the beginning of a student's first academic year is protective, however, it subsequently becomes a barrier to a student's sense of institutional belonging leading to a higher risk of dropping out (Hausmann et al., 2007). One of the reasons for this becoming a barrier may be related to increased parental support is an attempt to keep a student with a low sense of belonging from dropping out (Hausmann et al., 2007). Another reason is students who maintain strong ties with their parents through living at home or frequently returning home feel like they belong more to their home community than to the campus community (Hausmann et al., 2007). However, Native

American students who maintain a strong connection with home have higher institutional belonging levels because they come from a culture that emphasizes a spiritual connection to the land and family (Tachine et al., 2017).

Institutional or school belonging is how well a student feels connected to the institution in terms of friends, commitment to the institution, and how their relationships connect to the larger campus community (Pittman & Richmond, 2007). Pittman & Richmond (2007) concluded second semester first-year students with a higher sense of institutional belonging could be an important factor to having a positive college experience. Research suggests that institutional belonging is influenced by social acceptance of the campus community (Freeman et al., 2007). Pittman & Richmond (2008) found a positive relationship between university belonging and the quality of friendships in first-year students. There was a positive relationship between sense of belonging and social capital among working-class students (Soria & Stebleton, 2013). Over the first academic year, students' sense of belonging trended negative, however an intervention program that gave students either gifts with university logos or written institutional belonging communications from the university slowed the rate of decline in belonging levels (Hausmann et al., 2007).

Theoretical Foundations

Maslow: Hierarchy of Needs

Maslow (1943) theorized that human motivation is based on a hierarchy of needs divided into five sets of goals called basic needs. The first basic needs goal is meeting the *physiological needs* of a person, which pertain to homeostasis and satisfying appetites such as hunger and thirst (Maslow, 1943). When these needs are not met, then a person

will forgo all the other basic needs goals in order to satisfy their *physiological needs*. The second goal is meeting the *safety needs* of a person seeking stability in their life to feel secure in their life. Once a person is healthy and safe, the third basic needs goal is meeting the *love needs* that leads a person to seek out relationships of love, affection, and belonging (Maslow, 1943). The fourth basic needs goal is meeting the *esteem needs* or the need to have a healthy self-esteem. If all of the previous four goals are met, then the fifth goal is the *self-actualization* of a person doing what will make them ultimately happy (Maslow, 1943). It is Maslow's inclusion of belonging in the third basic needs goal, *love needs,* that is cited by researchers who consider belonging a need. However, in order for this need to be satisfied two other needs must be satisfied first before a person will consider their need to belong.

Theory of Belongingness

Baumeister and Leary (1995) built on Maslow's hierarchy of needs and Bowlby's attachment theory in order to build a more empirically testable theory of belongingness. A major point of contention with Maslow's hierarchy of needs theory is that it requires food, shelter, and safety needs to be met before the need to belong. In the case of Bowlby's attachment theory, the point of contention is with the need to form social relationships and group affiliations coming from a child's personal attachment to their mother (Baumeister & Leary, 1995). On the other hand, Baumeister and Leary's (1995) theory of belongingness states that the need to belong does not come from any particular relationship and the loss of a relationship can be replaced by another meaningful social contact (Baumeister & Leary, 1995). Furthermore, the need to belong cannot be satisfied by social contact with strangers or disliked contacts because the need to belong requires a

desire for healthy likable relationships. They proposed: “the belongingness hypothesis is that human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships” (Baumeister & Leary, 1995, p. 497). As a need, belonging should exist in some form in all human cultures and be difficult for cultures to suppress (Baumeister & Leary, 1995).

In addition, Baumeister and Leary (1995) contradict Maslow’s argument that the need to belong is equally as vital as the need for food, safety, and shelter. The forming of social bonds, and the ease at which they are able to form, support the concept that the need to belong is not dependent on other needs. For example, the Robbers Cave study randomly assigned unacquainted boys to groups and within these groups these boys quickly formed strong bonds with each other (Baumeister & Leary, 1995). Baumeister and Leary (1995) concluded social bonds easily form naturally without a need for materialism and for people to invest heavily in maintaining those relationships.

Baumeister and Leary (1995) established a set of metatheoretical criteria that would satisfy the need to belong as a fundamental human motivation. The first criterion is the ability to produce effects in all, but harmful situations. Next, the second criterion has emotional consequences and the third criterion is cognitive responses. Fourth, being deprived of the need will lead to adverse effects. Satiation and substitution is the fifth criterion that is based on goal-oriented behavior. The sixth criterion is that it is universal across cultures and the seventh criterion is there are no other motives for the need to belong. The eighth criterion is that motivation applies to a wide range of behaviors. Finally, the ninth criterion is the motivation should go beyond psychological functioning and can be studied in other fields.

Once social bonds are formed according to the belonging hypothesis, there is a strong desire to prevent the dissolution of the bonds (Baumeister & Leary, 1995). College is an excellent example of social bonds being formed with a set end date, however people continue to make an effort to maintain those bonds by holding reunions. Also, greetings and farewells are used to reinforce the social bonds of the relationship and an inadequate exchange can cause distress of the potential dissolution of the relationship (Baumeister & Leary, 1995). However, Baumeister and Leary (1995) note the ethical difficulty of empirically proving this component of the theory under laboratory conditions.

Another criterion of the belongingness hypothesis is satiation and substitution of relationships. Satiation theorizes people will only seek a limited number of meaningful relationships and that each subsequent relationship will result in diminishing returns (Baumeister & Leary, 1995). For example, a college student who joins Greek life is less likely to join the gardening club because their need to belong has been satisfied. On the other hand, substitution is the ability to replace social connections with new ones. An example would be an 18-year-old student starting college develops new relationships on campus to replace the ones lost from high school. Both satiation and substitution are important factors in the need to belong and work together to create long-lasting healthy relationships.

According to the belongingness hypothesis, any change in the status of a person's belonging will produce an emotional response (Baumeister & Leary, 1995). Some changes to belonging have a positive effect on emotions such as joining a new club at college or beginning a career in public health. However, threats to the social bonds of

belonging elicit a negative effect on emotions such as anxiety and depression (Baumeister & Leary, 1995). Another emotion triggered by negative effects is jealousy, which has been found to be cross-culturally universal in various forms. The most common cross-cultural form of jealousy is sexual jealousy and exclusion is one of the major causes of jealousy (Baumeister & Leary, 1995). Additionally, loneliness is a negative emotional response to a lack of belonging leading to adverse health effects.

The two biggest life-changing events to trigger an adverse emotional response are death and divorce. In both situations the end result is the termination of a relationship causing a person to feel a wealth of emotions such as grief, stress, and loneliness (Baumeister & Leary, 1995). Although the exact date and time of a future death is rarely known, the knowledge of the certainty of death is a threat to belonging and can lead to higher levels of anxiety and loneliness. Furthermore, the distress caused by divorce and death supports the belongingness hypothesis because it exists across all cultures (Baumeister & Leary, 1995).

However, the need to belong should have a greater effect on mental health outcomes than eliciting emotional responses. Baumeister and Leary (1995) support their belongingness hypothesis by examining how deprivation of belongingness affects physical and mental health. Married couples tend to have better physical health such as reduced risk of heart attacks and better cancer survival rates than a single person (Baumeister & Leary, 1995). Mental health suffers when people feel socially isolated or lack the social support to manage the stress of life (Baumeister & Leary, 1995). The effect of belongingness on mental illness is similar to its effect on physical health (Baumeister & Leary, 1995).

The need to belong requires both meaningful relationships and frequent interactions with social contacts (Baumeister & Leary, 1995). However, there are situations that prevent both requirements from occurring and should lead to an adverse effect. For example, prisoners experience relatedness without interaction with their families that results in a prisoner valuing the relationship, but suffers from the lack of interaction (Baumeister & Leary, 1995). Long-distance relationships are another example of relatedness without interactions and there is a higher stress level with less satisfaction when compared to close-distance relationships. On the other hand, interaction without relatedness does not have clear empirical evidence of adverse effects from deprivation, although Baumeister & Leary (1995) concluded more research is needed.

In order to further support their theory, Baumeister and Leary (1995) addressed counterexamples that appear to show people are individualistic and self-interested. One example is the refusal to help or cooperate when there are multiple bystanders, however belongingness has been shown to mitigate this effect. Additionally, non-reciprocation of love is another counterexample, although Baumeister and Leary (1995) do not think it is a serious challenge because of saturation from being in a romantic relationship and emotional reactions from rejecting someone. Lastly, shyness has antisocial characteristics, on the other hand Baumeister and Leary (1995) consider it a defense mechanism to avoid rejection and shy people continue to seek social connections.

Baumeister and Leary (1995) concluded that there is sufficient empirical evidence to support the belongingness hypothesis as a need. When the need to belong is deprived it can lead to adverse physical and psychological health problems. Furthermore, the need

to belong is innate to humans, however the exact reason for this is not known and further research is recommended (Baumeister & Leary, 1995).

Summary

Institutional belonging is important for college students because it may be associated with both academic success and mental health outcomes. Although institutional belonging is not well-studied in higher education, existing research shows it can be linked to mental health outcomes that can greatly impact academic success. Furthermore, existing research shows identity factors such as minorities and first-generation college students have an effect on institutional belonging. My research proposes to study the impact, if any, of grade point average (GPA) on mental health outcomes and the way in which institutional belonging may moderate those associations. It also proposes to investigate the possible direct relationships between institutional sense of belongingness and mental health outcomes including loneliness, stress, and psychological well-being. Finally, we ask whether this relationship is impacted by first-generation status and biological sex.

CHAPTER III: METHODS

Brief Introduction

Chapter III outlines the methodology used in this study. Utilizing a secondary data analysis of previously collected data surveying the physical and mental health of college students, the relationships between institutional belonging, academic success, and three factors of mental health: stress, psychological well-being, and loneliness were examined. The following sections describe the study's design, data collection procedures, measurements, and data analysis procedures.

Research Design

The American College Health Association National College Health Assessment (ACHA-NCHA) is a nationally recognized survey used by many colleges and universities across the U.S. to collect precise data on student health habits, behaviors, and perceptions (American College Health Association, 2021). The web-based survey was administered by the American College Health Association (ACHA) using Qualtrics LLC *Research Suite* to design, administer, and collect the data (American College Health Association, 2021). A Northwest regional state university provided the list of selected student participants, the informed consent form, and IRB approval. An SPSS data file of the survey data was provided by ACHA to the institution along with an executive summary of the data.

This study used cross-sectional data from the American College Health Association National College Health Assessment III (ACHA-NCHA III) created by the

ACHA and is the third and most current version of this survey. ACHA-NCHA III uses new enhanced data logic and skip patterns that uses student responses to bypass non-applicable questions (American College Health Association, 2021). The data used for this study was based on relevant questions in the ACHA-NCHA III survey asking about institutional belonging, mental health outcomes, GPA, and demographic information.

Setting

A total of about 5,000 students from a Northwest regional state university were randomly selected to participate in the ACHA-NCHA III, Spring 2020, of which 743 students (aged 18-30+ years) in the undergraduate and graduate colleges voluntarily responded to the electronic survey.

Participants

The sample population by biological sex was female (70.9%), male (29.1%), and intersex (0.0%). Sexual identity was a majority Straight/Heterosexual (83.9%) and bisexual (6.6%) was the majority among sexual minority groups. A majority of the students were undergraduates (74.5%) and full-time students (75%). Additionally, student status for undergraduate: 1st year (16.4%), 2nd year (13.6%), 3rd year (19.1%), 4th year (17.5%), and 5th year or more (7.9%). A majority of the graduate students were in master's programs (19.6%). Most students lived in off-campus housing (65.7%) or with Parent/guardian/other family (15.6%) and some students lived in campus or university housing (14.1%). The described ethnicity of the students were White (82.9%), Hispanic or Latino/a/x (9.7%), Asian or Asian American (4.7%), American Indian or Native Alaskan (3.0%), and Black or African American (1.9%). Those students who reported no parent/guardian completing a bachelor's degree were categorized as first-

generation students (44.2%). The mean age of the student was 27.2 years and the median age was 23.0 years.

Measurements

The study will use the following measurements:

Independent Variables

Institutional belonging: Students responded to four statements related to institutional belonging: "I feel that I belong at my college/university", "I feel that students' health and well-being is a priority at my college/university", "At my college/university, I feel that the campus climate encourages free and open discussion of students' health and well-being", and "At my college/university, we are a campus where we look out for each other" by using a 6-point Likert scale with 1=strongly disagree and 6=strongly agree. Institutional belonging was measured by the sum of the values across the four items measuring belonging (range= 4-24). In the present study the data were sorted into three groups were used to measure the level of institutional belonging: Low (4-12), Medium (13-18), and High (19-24). This study sought to add the medium group to further break down the distribution of institutional belonging to better demonstrate linearity of the relationship and to provide better insight into the effects of low belonging on mental health outcomes and academic success. Only students that answered all four institutional belonging questions were used in the data analysis. The Cronbach α was 0.84 for this study.

Covariates

First-generation status: was determined by asking students to respond to the question "What is the highest level of education completed by either of your parents (or

guardians)?" (Did not finish high school, High school diploma or GED, Attended college but did not complete degree, Associate degree or trade/technical training, Bachelor's degree, Master's degree, Doctoral or professional degree, Don't know). All students who responded that no parent (or guardian) had completed at least a Bachelor's degree were categorized as having first-generation status. For data analysis purposes generational status was assigned as first-generation status=1 and continuing-generation status=2.

Biological sex: was measured by students responding to the question "What sex were you assigned at birth?" (Female, Male, Intersex). No students surveyed responded they were Intersex, therefore it was not included as a category in the data analysis. For data analysis purposes biological sex was assigned as Female=1 and Male=2.

Dependent Variables

Loneliness

Loneliness was measured using the UCLA Three-Item Loneliness Scale (ULS3) and all questions were based on a 3-point scale (1=Hardly ever, 2=some of the time, 3=often). The three questions were: "How often do you feel that you lack companionship?", "How often do you feel left out?", and "How often do you feel isolated from others?". The ULS3 measures loneliness by totaling three questions (score 3-9) and based on the student's score, they were either negative for loneliness (3-5) or positive for loneliness (6-9). The Cronbach α was 0.84 for this study.

The UCLA Loneliness Scale Version 3 was validated by comparing it to other loneliness scales and using a diverse sample population of college students, nurses, teachers, and elderly (Russell, 1996). The coefficient alpha (range=0.89-0.94) supported

the reliability of the UCLA Loneliness Scale Version 3 and there was a strong correlation with the other scales (Russell, 1996).

Stress

Stress was measured using the question "Within the last 12 months, how would you rate the overall level of stress experienced:" with categorical responses of no stress, low, moderate, and high. For statistical analysis the categorical answers were converted to a 1-4 scale with 4 being the highest level of stress.

Psychological Well-being

Psychological well-being was measured using the Diener Flourishing Scale-Psychological Well-being (DFS-PWB) Score. The DFS-PWB uses positive direction statements on important aspects of human functioning such as relationships, feelings of competence, and meaning and purpose in life (Diener et al., 2010). Diener et al. (2010) validated the DFS-PWB scale by comparing their new scales to previously validated scales of well-being measures. Additionally, students from six colleges and universities participated in the validation study (Diener et al., 2010). Cronbach's α was 0.87 for DFS-PWB indicating there was internal consistency of the items (Diener et al., 2010). Temporal stability (0.71) was moderately high and tested by having the student participants repeat the process about a month apart (Diener et al., 2010).

Students responded to eight statements about their well-being based on a 7-point Likert scale with 1=strongly disagree to 7=strongly agree. The range of scores are 8-56 with the higher the score the better the psychological well-being. The Cronbach α was 0.94 for this study.

Grade Point Average (GPA)

Grade point average (GPA) was measured by asking students to report their approximate GPA as a letter grade (A+=1, A=2, A-=3…F=13). For this study, the letter grade responses were converted to a standard 4.0 GPA scale (A+=4.3, A=4.0, A-=3.7…F=0.0).

Data Collection Procedures

The ACHA-NCHA III survey was administered by the American College Health Association. The Office of Research Compliance at the Northwest regional state university randomly selected a representative sampling frame of about 5,000 students. Electronic surveys were sent to the full sample. The response rate was 14.9% resulting in 743 student participants.

Data Analysis Procedures

Research Question #1: What is the relationship between college students' institutional sense of belonging and their mental health outcomes?

Sub Question #1: Is this relationship impacted by first-generation status?

Sub Question #2: Is this relationship impacted by biological sex?

SPSS will be used to analyze the data from the ACHA-NCHA III survey. A multivariate analysis of variance (MANOVA) will be used to compare the dependent variable means of stress, loneliness, and well-being across the low, medium, and high levels of the Independent Variable, Institutional Belonging. The α-level will be set at 0.05. Post-Hoc analyses of all significant effects will be investigated using Bonferroni comparisons. To investigate the sub question of whether first-generation status impacts the relationship between institutional belonging and mental health outcomes, we will run

an analysis of covariance (ANCOVA) looking at main and interaction effects across the independent variables; institutional belonging and first-generation status on all significant variables identified in the MANOVA analysis. To investigate the sub question, of whether biological sex impacts the relationship between institutional belonging and mental health outcomes, we will run an ANCOVA looking at main and interaction effects across the independent variables; institutional belonging and biological sex on all significant variables identified in the MANOVA analysis.

Research Question #2: What is the relationship between college students' institutional sense of belonging and their GPA?

Sub Question #1: Is this relationship impacted by first-generation status?

Sub Question #2: Is this relationship impacted by biological sex?

SPSS will be used to analyze the data from the ACHA-NCHA III survey. An analysis of variance (ANOVA) will be used to compare the dependent variable means of student GPA across the low, medium, and high levels of the Independent Variable, Institutional Belonging. The α-level will be set at 0.05. Post-Hoc analyses of all significant effects will be investigated using Bonferroni comparisons. To investigate the sub question of whether first-generation status impacts the relationship between institutional belonging and GPA, we will run an ANCOVA looking at main and interaction effects across the independent variables; institutional belonging and first-generation status on all significant variables identified in the ANOVA analysis. To investigate the sub question, of whether biological sex impacts the relationship between institutional belonging and mental health outcomes, we will run an ANCOVA looking at

main and interaction effects across the independent variables; institutional belonging and biological sex on all significant variables identified in the MANOVA analysis.

Research Question #3: Do mental health factors impact GPA and does institutional belonging moderate this relationship?

SPSS will be used to analyze the data from the ACHA-NCHA III survey. A Multiple Regression analysis will be used to assess the potential associations between the mental health outcomes: stress, psychological well-being, and loneliness on the dependent variable of student GPA. The α-level will be set at 0.05. Next, the impact of belonging on any significant association will be tested using a Multiple Regression interaction analysis. Impact will be determined by assessing significance of the interaction term.

Summary

The described research design and data analysis methods were used to explore these research questions and sub questions. Although there are limitations to this study (see Chapter I: Introduction), it is our belief that this study will provide a worthwhile contribution to the literature on the relationship between institutional belonging and mental health outcomes.

CHAPTER IV: RESULTS

The purpose of this study was to assess the different relationships between institutional belonging, GPA, and the three mental health outcomes: level of stress, psychological well-being, and loneliness. First-generation status and biological sex were adjusted for as covariates. Additionally, this study examined the relationship between GPA and the three mental health outcomes and if belonging moderated the significant relationships. The alpha level was set at 0.05 for all three research questions.

Belonging Demographics

There were 743 students that answered the survey and 736 students answered all four belonging questions (M=18.21, SD=3.39) with a range of scores 4-24. The distribution of the sample population among the three belonging groups are: low (N=45), medium (N=321), and high (N=370). The descriptive statistics of institutional belonging by belonging groups for the total subjects and both covariates are shown in Table 4.1. Table 4.2 summarizes the correlations of all the study variables with descriptive statistics. Figure 4.1 illustrates the similarity between institutional belonging score means for the covariates: first-generation status and biological sex.

Table 4.1 Descriptive Statistics for Belonging Groups

	Low		Medium		High	
	M	*SD*	*M*	*SD*	*M*	*SD*
Total Subjects	10.20	2.03	16.34	1.48	20.81	1.69
Biological Sex						
Female	10.59	1.55	16.35	1.47	20.88	1.72
Male	9.61	2.52	16.30	1.54	20.65	1.60
Generation Status						
First	10.14	2.44	16.34	1.45	20.82	1.71
Continuing	10.20	1.60	16.36	1.51	20.82	1.69

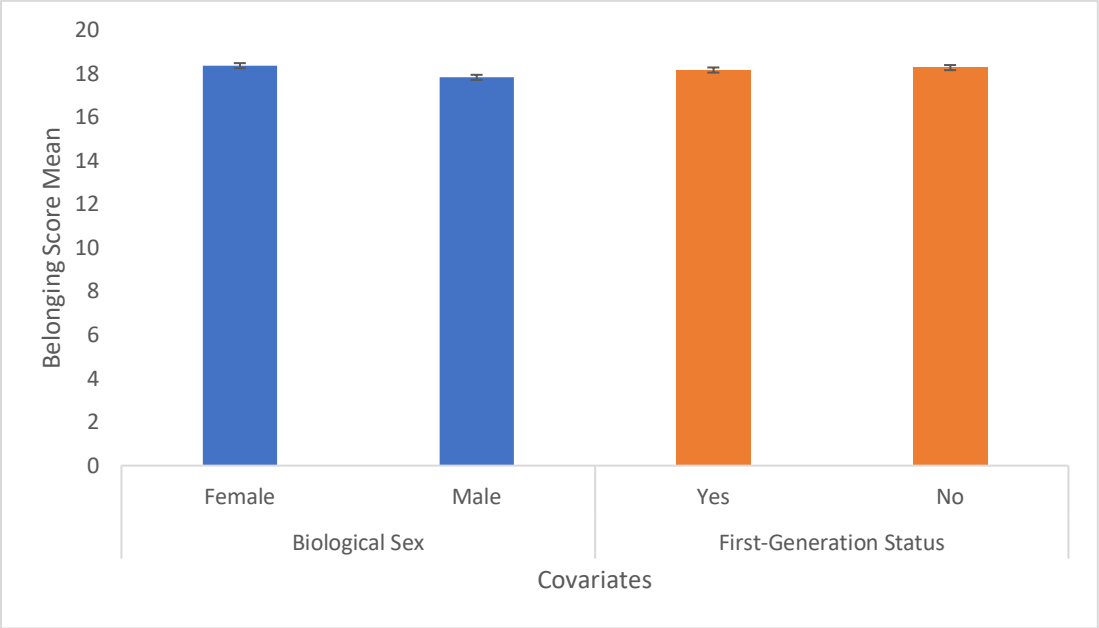

Figure 4.1 Mean Institutional Belonging Scores by Covariates

Table 4.2 Descriptive Statistics and Correlations for Study Variables

	n	*M*	*SD*	1	2	3	4	5	6	7
1. Psychological Well-being	735	46.79	8.08	—						
2. Loneliness	738	5.12	1.86	-0.51	—					
3. Stress	740	2.93	0.76	-0.26	0.30	—				
4. Belonging Score	736	18.21	3.39	0.41	-0.25	-0.22	—			
5. GPA	731	3.58	0.58	0.21	-0.12	-0.06	0.18	—		
6. Biological Sex [a]	739	—	—	-0.15	0.01	-0.14	-0.07	-0.11	—	
7. Generation Status [b]	734	—	—	-0.03	0.00	-0.01	0.02	-0.12	-0.01	—

[a] 1=female and 2=male

[b] 1=first-generation status and 2=continuing-generation status

Relationship between Belonging and Mental Health Outcomes

A Factorial ANOVA was used to compare the three levels of institutional belonging (low, medium, and high) of students to the three mental health outcomes: stress, loneliness, and well-being. The Wilk's Lambda Test [$F(6)=21.842$, $p<0.001$] was significant for the overall relationship between institutional belonging and the three mental health outcomes. The analysis revealed a significant difference in institutional belonging across stress levels [$F(2,724)=15.800$, $p<0.001$], loneliness [$F(2,724)=25.777$, $p<0.001$], and psychological well-being [$F(2,724)=60.918$, $p<0.001$] (Table 4.3). A Bonferroni's post hoc test was performed and revealed significant differences between nearly all belonging groups and the three mental outcomes, except for the interaction between loneliness and the low and medium belonging groups was not significant.

Students in the low belonging group ($M=3.35$, $SD=0.69$) had higher reported stress levels than the students in the medium belonging group ($M=3.03$, $SD=0.73$). The students in the high belonging group reported being the least stressed of the three belonging groups ($M=2.79$, $SD=0.78$). Students in the low belonging group ($M=6.14$, $SD=2.24$) were lonelier than those students in the medium belonging group ($M=5.53$, $SD=1.90$). The students in the high belonging group ($M=4.68$, $SD=1.67$) were the least likely to be lonely. Students in the low belonging group ($M=41.07$, $SD=10.48$) had lower psychological well-being scores than the students in the medium belonging group ($M=44.25$, $SD=8.05$). The students in the high belonging group had the highest well-being scores of the three belonging groups ($M=49.74$, $SD=6.28$).

Table 4.3 Means, Standard Deviations, and One-Way Analyses of Variance in Mental Health Outcomes by Belonging Group

Measure	Low		Medium		High		$F(2,724)$
	M	*SD*	*M*	*SD*	*M*	*SD*	
Psychological Well-being	41.07	10.48	44.25	8.05	49.74	6.28	60.918***
Loneliness	6.14	2.24	5.53	1.90	4.68	1.67	25.777***
Stress	3.35	0.69	3.03	0.73	2.79	0.78	15.800***

***$p<0.001$

First-generation Status

An analysis of covariance (ANCOVA) was performed to compare the covariance effect of first-generation student status on the relationship of student institutional belonging levels with the three mental health outcomes: stress, loneliness, and psychological well-being. The Wilk's Lambda test [F(3)=0.519, ns] was not significant for the overall relationship between first-generation status and the three mental health outcomes. Additionally, there were no significant relationships between first-generation status and any of the three mental health outcomes. The Wilk's Lambda test [F(6)=22.408, p<0.001] was significant for the overall relationship between institutional belonging and the three mental health outcomes after including the covariate, first-generation status. The analysis revealed a significant difference for all three mental health outcomes: loneliness [F(2,718)=26.256, p<0.001], psychological well-being [F(2,718)=63.071, p<0.001], and stress [F(2,718)=15.557, p<0.001]. Students with first-generation status had lower levels of well-being and higher levels of stress and loneliness when compared with continuing-generation status students (Table 4.4). A pre-test ANOVA was performed to determine if there was shared variance between institutional

belonging and first-generation status. There was no significant relationship between institutional belonging and first-generation status.

Table 4.4 Descriptive Statistics for First-Generation Status by Belonging Groups in Mental Health Outcomes

Belonging Groups		Stress		Well-being		Loneliness	
	N	*M*	*SD*	*M*	*SD*	*M*	*SD*
	First-generation						
Low	20	3.25	0.72	42.00	10.69	5.65	2.23
Medium	130	3.02	0.74	43.77	8.16	5.68	1.88
High	170	2.79	0.78	49.36	7.44	4.67	1.75
	Continuing-generation						
Low	23	3.43	0.66	40.26	10.46	6.57	2.21
Medium	185	3.03	0.71	44.48	7.96	5.44	1.90
High	194	2.79	0.78	50.18	5.03	4.68	1.60

Biological Sex

An analysis of covariance (ANCOVA) was performed to compare the covariance effect of biological sex on the relationship of student institutional belonging levels with the three mental health outcomes: stress, loneliness, and psychological well-being. The Wilk's Lambda test [$F(3)=16.156$, $p<0.001$] was significant for the overall relationship between biological sex and the three mental health outcomes. The analysis revealed a significant difference for two of three mental health outcomes: stress [$F(1,722)=17.698$, $p<0.001$], psychological well-being [$F(1,722)=17.924$, $p<0.001$], and loneliness [$F(1,722)=0.051$, ns]. The Wilk's Lambda test [$F(6)=21.431$, $p<0.001$] was significant for the overall relationship between institutional belonging and the three mental health

outcomes after including the covariate, biological sex. The analysis revealed a significant difference for all three mental health outcomes: stress [$F(2,722)=17.032$, $p<0.001$], psychological well-being [$F(2,722)=60.618$, $p<0.001$], and loneliness [$F(2,722)=25.692$, $p<0.001$]. Biological females reported higher levels of stress and higher psychological well-being across all belonging groups than biological males (Table 4.5). A pre-test ANOVA was performed to determine if there was shared variance between institutional belonging and biological sex. There was no significant relationship between institutional belonging and biological sex.

Table 4.5 Descriptive Statistics for Biological Sex by Belonging Groups in Mental Health Outcomes

Belonging Groups	Stress		Well-being		Loneliness	
	N	*M*	*SD*	*M*	*SD*	*M*	*SD*
				Females			
Low	26	3.42	0.70	42.00	10.64	5.96	2.34
Medium	225	3.11	0.70	45.2	7.59	5.53	1.86
High	317	2.86	0.75	50.29	6.16	4.71	1.68
				Males			
Low	17	3.24	0.66	39.65	10.386	6.41	2.12
Medium	92	2.82	0.75	41.93	8.71	5.54	2.00
High	103	2.62	0.82	48.38	6.43	4.62	1.66

Relationship between Belonging and GPA

A one-way ANOVA was used to compare the means of the GPA of students in the three different belonging groups (low, medium, high). The results of this analysis produced a statistically significant difference between the GPA of students in the three

different belonging groups [F(2,724)=11.170, p<0.001]. A Bonferroni's post hoc test was performed and revealed significant differences between nearly all belonging groups and GPA, except the interaction between the low and medium belonging groups was not significant. Students in the low belonging group (M=3.31, SD=0.733) had a lower average GPA than those students in the medium belonging group (M=3.52, SD=0.578) and the students in the high belonging group (M=3.67, SD=0.531) had the highest average GPA (Figure 4.2).

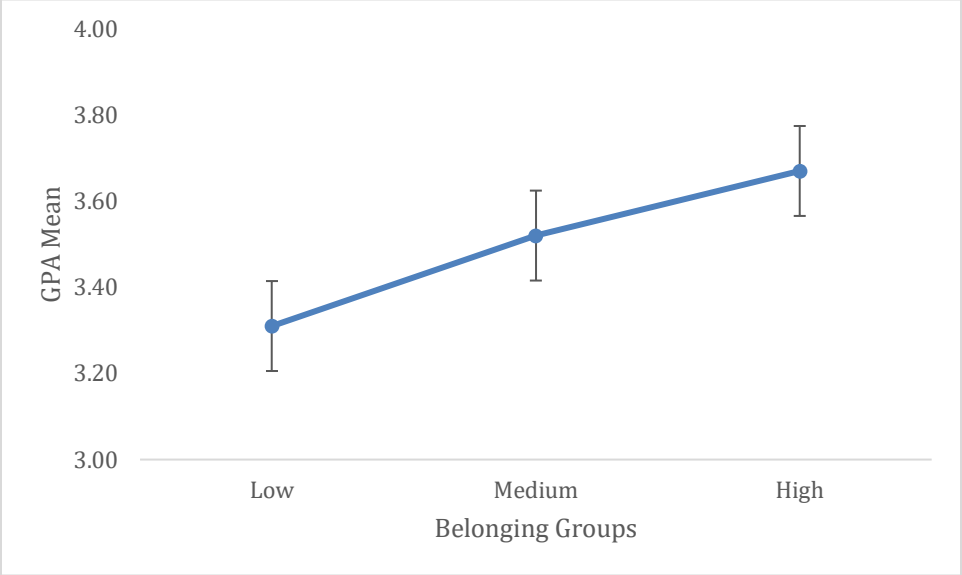

Figure 4.2 GPA Means of Belonging Groups

First-generation Status

An analysis of covariance (ANCOVA) was performed to compare the covariance effect of first-generation student status on the relationship of student institutional belonging levels with student GPA. First-generation status was significantly associated with GPA [F(1,720)=11.84, p<0.001]. There was a significant difference in institutional belonging and student GPA after including the covariate, first-generation student status

[F(2,720)=11.269, p<0.001]. Students who had first-generation status (M=3.504, SD=0.628) reported lower average GPA than continuing-generation status students (M=3.645, SD=0.517) (Figure 4.3). A pre-test ANOVA was performed to determine if there was shared variance between institutional belonging and first-generation status. There was no significant relationship between institutional belonging and first-generation status.

Biological Sex

An analysis of covariance (ANCOVA) was performed to compare the covariance effect of biological sex on the relationship of student institutional belonging levels with student GPA. Biological sex was significantly associated with GPA [F(1,720)=7.701, p=0.006]. There was a significant difference in institutional belonging levels and student GPA after including the covariate, biological sex [F(2,720)=10.616, p<0.001]. Biological females (M=3.620, SD=0.576) reported higher average GPA than biological males (M=3.483, SD=0.565) (Figure 4.3). A pre-test ANOVA was performed to determine if there was shared variance between institutional belonging and biological sex. There was no significant relationship between institutional belonging and biological sex.

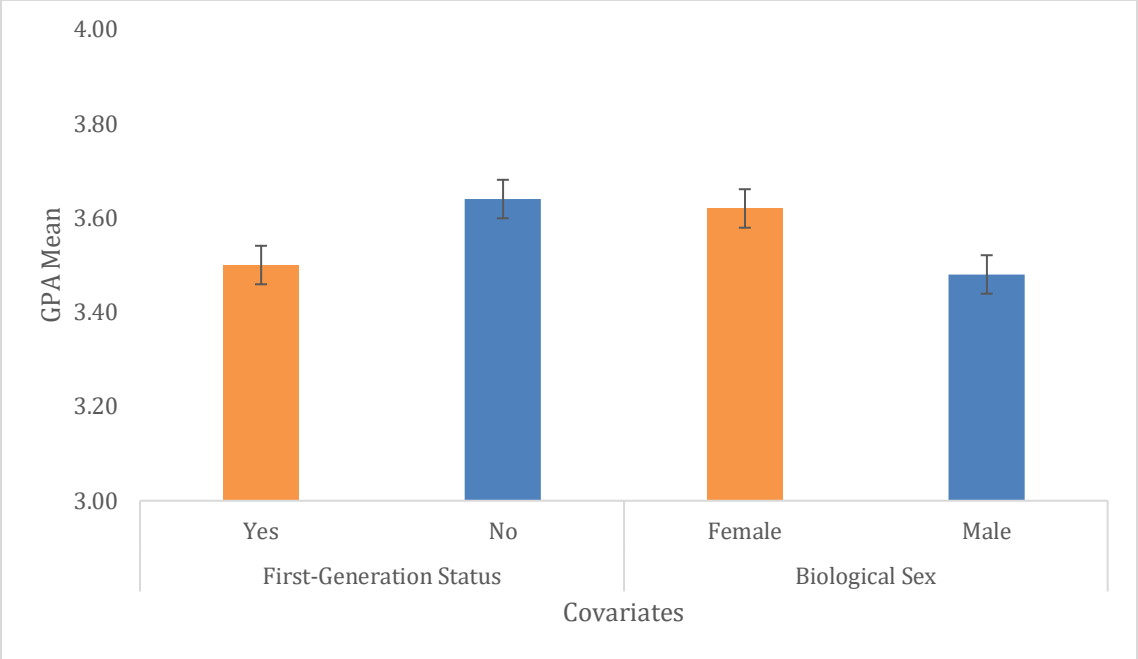

Figure 4.3 GPA Means of Covariates

Mental Health Outcomes Impact on GPA

A Multiple Regression analysis was performed to analyze the potential associations between student GPA and the three mental health outcomes: levels of stress, loneliness, and psychological well-being. Table 4.6 summarizes the descriptive statistics for GPA and the three mental health outcomes. The overall model was significant [$F(3)=11.666$, $p<0.001$] with a $R^2=0.046$ indicating 4.6% of the variability in GPA was the result of contributions from the three mental health outcomes. Psychological well-being was the only significant contributor to the model ($B=0.018$, $p<0.001$) (Table 4.7). Levels of stress and loneliness did not have a significant effect on GPA.

Table 4.6 Descriptive Statistics for GPA and Mental Health Outcomes

	N	*M*	*SD*
GPA	725	3.58	0.58
Mental Health Outcomes			
Loneliness	725	5.14	1.87
Psychological Well-being	725	46.76	8.10
Stress	725	2.93	0.76

Table 4.7 Multiple Regression Model for GPA

		Unstandardized Coefficients		
Model		B	*SE*	*p*
1	(Constant)	2.901	0.206	<0.001
	Loneliness	-0.003	0.013	0.847
	Psychological Well-being	0.018	0.007	<0.001
	Stress	-0.002	0.029	0.955

Belonging as a Moderator

A Multiple Regression analysis was performed to analyze the potential of institutional belonging as a moderating variable on the relationship between GPA and psychological well-being. Table 4.8 summarizes the descriptive statistics for belonging as a moderator. Belonging did not have a significant moderating effect (Table 4.9). Because stress and loneliness were previously found to be not significantly associated with GPA, they were excluded from this analysis.

Table 4.8 Descriptive Statistics for Belonging as a Moderator

	N	*M*	*SD*
GPA	719	3.58	0.58
Psychological Well-being	719	46.80	7.99
Institutional Belonging	719	18.19	3.40
Belonging*Well-being	719	863.65	249.97

Table 4.9 Multiple Regression Model for Belonging as a Moderator

		Unstandardized Coefficients		
Model		B	*SE*	*p*
1	(Constant)	2.700	0.141	<0.001
	Psychological Well-being	0.012	0.003	<0.001
	Institutional Belonging	0.018	0.007	0.007
2	(Constant)	2.359	0.576	<0.001
	Psychological Well-being	0.019	0.012	0.125
	Institutional Belonging	0.039	0.034	0.256
	Belonging*Well-being	0.000	0.001	0.541

CHAPTER V: DISCUSSION

The purpose of this study was to further understand the relationship institutional belonging has with both mental health outcomes and GPA and to investigate the possible moderating influence of institutional belonging on GPA and mental health outcomes. As an exploratory study, this study sought to provide useful data for future institutional belonging research. This chapter includes a summary of the study's key findings, a discussion section, implications for future public health practices, future research, limitations, and a conclusion.

Summary of Key Findings

RQ #1: Institutional Belonging and Mental Health Outcomes

Institutional belonging was found to have a strongly significant relationship with all three measures of mental health outcomes (level of stress, psychological well-being, and loneliness). Because all three outcome variables were significantly associated with institutional belonging, it is reasonable to conclude that a student's sense of institutional belonging plays an important role in their mental health. Those students with a higher sense of institutional belonging were more likely to report lower stress levels, less loneliness, and higher psychological well-being than students with a lower sense of institutional belonging. It should be noted that the analysis of the data only proved that a relationship exists, not that a higher sense of institutional belonging leads to better mental health outcomes. However, the theory of belongingness is based on the idea that humans have a need to form positive long-lasting social relationships and if deprived of the need

to belong they will suffer adverse mental health outcomes (Baumeister & Leary, 1995) and the results presented here are consistent with this hypothesized relationship.

Institutional belonging was strongly significantly associated with stress and was consistent with the previous research that there is an inverse relationship with stress and institutional belonging (Civitci, 2015; Pittman & Richmond, 2008; Reilly & Fitzpatrick, 2009; Thompson et al., 2019). One of the difficulties of measuring stress is it is based on perception, which is subjective and can vary based on the situation (Jenkins et al., 2021). Institutional belonging is thought to act as a buffer for students who are in stressful situations and minimizes behaviors that could increase stress levels (Pittman & Richmond, 2008; Thompson et al., 2019). Because this study did not examine the specific causes of stress, only generalized perceived stress, it cannot be determined if institutional belonging has more of an association with different types of stress such as academic, social, financial, etc.

Perceived stress is also based on the situation e.g., older students tend to have careers, dependent children, and other responsibilities that could increase stress levels, which are not common with traditional students (Reilly & Fitzpatrick, 2009). A confounding issue with older students is their sense of institutional belonging might not be as high because they have non-institutional relationships e.g., spouses and children, coworkers, and friends (Reilly & Fitzpatrick, 2009) that fulfill their need to belong that could prevent them from establishing meaningful institutional relationships with other students, faculty, and campus organization resulting in a lower sense of institutional belonging. Baumeister and Leary (1995) theorized that when a person reaches their minimum number of relationships, they do not seek out new relationships and the benefit

of any subsequent new relationship is reduced. For this study it means that even though there is a significant relationship between institutional belonging and stress levels, there is a possibility that the stress is not educationally or institutionally related and those with a low sense of institutional belonging may have relationships outside the institution preventing them from feeling a sense of institutional belonging.

The observed association of institutional belonging and psychological well-being was consistent with previous research (Cooper et al., 2021; Pittman & Richmond, 2007). Strayhorn et al. (2015) did not find a significant relationship between belonging and psychological well-being, but noted their sample size might not have been large enough to obtain a significant result. This study used the Diener Flourishing Scale – Psychological Well-Being to measure psychological well-being, whereas other prior research included other measures of psychological well-being: peer relationships, social barriers (e.g., discrimination and socioeconomic status), adjusting to the campus environment, and seeking mental health services (Amodeo et al., 2020; Elliott & Doane, 2015; McBeath et al., 2018; Strayhorn et al., 2015). Because of the lack of a universal definition for psychological well-being (Yamaguchi, 2015), it limits generalizability and makes a comparison with previous research difficult. However, despite these limitations, a significant relationship between psychological well-being and institutional belonging was found.

The significant association of institutional belonging and loneliness was consistent with the previous research that higher levels of institutional belonging lead to better mental health outcomes (Gopalan & Brady, 2020; Pittman & Richmond, 2008). However, as mentioned in Chapter II, the specific association between loneliness and

institutional belonging is not well-researched. The results of this study are similar to previous research on the relationship between depression and institutional belonging (Civitci, 2015; Øverup et al., 2017). This study's finding furthers the understanding of the relationship between institutional belonging and loneliness by providing significant evidence of the relationship.

RQ #2: Institutional Belonging and GPA

The relationship between institutional belonging and GPA was strongly significant. Consistent with the research literature, a positive relationship was found between institutional belonging and GPA. A majority of the prior research focused on a specific group of students (e.g., first-year) (Hausmann et al., 2007; Pittman & Richmond, 2007), however the sample population for this study consisted of all levels of undergraduate and graduate students. A problem with using first-year students is they have a limited academic record and their GPA might not reflect their academic abilities. By using all levels of undergraduate and graduate students this study provides a more universal scope for the relationship and stresses the importance of maintaining a positive relationship between institutional belonging and GPA to increase academic success over time.

The significant relationship observed between institutional belonging and GPA illustrates the potential importance of the relationship, but causality cannot be determined from this analysis. It is logical, however, that a higher sense of institutional belonging could play a role in improving GPA, on the other hand it is also possible that students feel more of a sense of institutional belonging because they have higher GPAs. However, this study found that students in the low belonging group had the lowest mean GPA of 3.31

(B+) out of the three belonging groups, which is still a high GPA. Furthermore, students with higher GPAs are not immune from dropping out of college and those with a lower sense of institutional belonging are at increased risk of dropping out (Hausmann et al., 2007; Slaten et al., 2016). Therefore, it is reasonable to conclude that it is more likely a causal relationship exists with a higher sense of institutional belonging increasing GPA and not the other way around. Clearly a positive direct relationship between institutional belonging and GPA may be beneficial and provide a useful approach to improve the academic success of students.

RQ #1 & RQ #2: First-generation Status and Biological Sex

The results of this study found there was no difference in a sense of institutional belonging between first-generation students and continuing-generation students, which is contrary to previous research (Museus & Chang, 2021; Pittman & Richmond, 2007; Stebleton et al., 2014a). This discrepancy could be attributed to the design of the study, in that those with lower institutional belonging were less likely to respond to the survey or because the survey was given to students at a single institution and had a low response rate (14.9%) that may not be representative of the institutional population or generalizable to all college students. In addition, first-generation students are four times more likely to drop out after their first year than continuing-generation students (Stebleton et. al., 2014a), which could result in response bias and account for there being no difference in the current study. This survey design was not intended, however, to examine the differences in a sense of institutional belonging between first-generation students and continuing-generation students.

The results of this study also found there was no difference in a sense of institutional belonging between biological females and males. Although biological sex is used more as a control, Pittman & Richmond (2007) found no significant difference in belonging levels between males and females. After including the covariate, biological sex, relationships for institutional belonging with the three mental health outcomes and institutional belonging with GPA were still significant. This is supported by previous research that controlled for sex/gender and found a sense of belonging was still significant with their outcome variables (Civitci, 2015; Pittman & Richmond 2008).

RQ #3: GPA and Mental Health Outcomes with Institutional Belonging as a Moderator

The combination of all three mental health outcomes: levels of stress, psychological well-being, and loneliness showed a significant relationship with GPA, however only 4.6% of the variability in GPA was contributed to by the mental health outcomes. Additionally, psychological well-being was the only significant contributor (B=0.018). This positive relationship between GPA and psychological well-being agrees with previous research that has shown students with better psychological well-being have higher GPAs (Bahrassa et al., 2011; McNaughton-Cassill et al., 2021). One of the reasons the level of stress was not a significant contributor to the model is that stress can be either helpful or harmful (Jenkins et al., 2021), which for this study students were only asked to report general stress levels. Prior research indicates different types of perceived stress (e.g., financial, social, or academic) vary in how they affect GPA (Cadaret & Bennett, 2019; Jenkins et al., 2021; Keech, 2018). Loneliness did not significantly contribute to the model and is not well researched. However, depression is associated with lower GPA (Bryan et al., 2014) and because loneliness is linked to depression (Diehl

et al., 2018), it is possible a significant relationship exists between loneliness and GPA. Although causality cannot be determined by the analysis, based on the significance of the overall model and psychological well-being along with previous research, there is strong evidence to support students with better mental health outcomes also have more academic success.

The overall model of the relationship between GPA and the three mental health outcomes was significant, however the low variability indicates there are other factors that have a greater influence on GPA than these outcome variables. Some of the other institutional factors that can affect GPA are major, academic ability, learning style, faculty, class size, etc. (Gillen-O'Neel, 2021; Soria & Stebleton, 2013; Zumbrunn et al., 2014). For example, chemistry and pre-medicine majors are required to take organic chemistry, which is one of the most difficult course sequences in college that can be very competitive with little support from classmates and high student anxiety levels (Micari & Pazos, 2021). In addition to institutional factors there are external factors such as family, intimate relationships, finances, employment, housing situation, etc. that can affect GPA (Bahrassa et al., 2011; Cadaret & Bennett, 2019; Hausmann et al., 2007; McNaughton-Cassill et al., 2021; Tachine et al., 2017).

Further analysis revealed institutional belonging was not a significant moderator of the relationship between GPA and psychological well-being. Because GPA and psychological well-being each have significant relationships with institutional belonging, the nonsignificant result could be due to a measurement error or interference from institutional belonging having significant relationships with both psychological well-being and GPA. Although this study did not find institutional belonging moderated the

relationship between GPA and mental health outcomes, further study with more specific measures of GPA and mental health outcomes could yield better results. In previous research, institutional belonging has been found to be a moderating factor in other mental health relationships. Thompson et al. (2019) found a sense of belonging to be a mediating factor in stressful situations and was more protective for females than males.

Limitations

Students with low levels of institutional belonging are less likely to respond to the survey than those with higher levels of institutional belonging resulting in response bias. Also, a low response rate to the survey could have resulted in a sample population that is not representative of the population of the institution. The survey was given at a single institution with a homogeneous population, which limits the generalizability of this study. Additionally, the survey was given in February 2020 right before the COVID-19 pandemic disruption of the 2019-2020 academic year, therefore it may not represent the current state of the sense of institutional belonging at the surveyed institution. The lack of longitudinal data limits further understanding of how institutional belonging influences mental health outcomes and academic success over time.

Covariates

First-generation status students and biological sex (each with large sample populations) were controlled for as covariates in the analysis based on the previous literature. Gender identity, as opposed to biological sex identity, and race were not independently assessed in this study because of the lack of diversity in the sample population. Over 82% of the student population responded they identify as white and Hispanic or of Spanish Origin was second with about 10%. Gender identity did not

produce a useable sample size with only about 3% (~25 students) of the students reporting that they were non-binary and sexual identity was almost 84% straight/heterosexual. Age was not controlled for because of there was a narrow range of ages with a skewed distribution.

GPA

A limitation with GPA as a measure is it only provides a snapshot of academic success (Gillen-O'Neel, 2021). For this study, students were asked to report their current overall GPA, which varies based on a student's academic experience. For example, a first-year undergraduate student would only have one semester of GPA at the time of the survey, whereas an undergraduate student about to graduate would have over 100 credits. Additionally, current overall GPA does not provide any information on how the student may have improved over the course of their academic career or had one bad semester that is skewing their GPA. Higher major and class belonging are associated with higher grades (Amodeo et al., 2020; Wilson et al., 2015), which is more likely to affect 3rd year or later students who have declared majors. Furthermore, students with under a 2.0 GPA are expelled from the institution after a probationary period if they do not raise their GPA and would not have been able to participate in the survey resulting in response bias.

Implications for Future Public Health Practices

It is well documented that people who graduate college are more likely to have better mental health outcomes than those without a college degree, however graduating from college does not cure any unresolved mental health issues. Therefore, it is important for colleges and universities to be supportive of their students' mental health

needs and provide resources based on those needs. Too often the college students most in need of mental health services do not seek them out. However, students with a higher sense of institutional belonging are more likely to use these services (Gopalan & Brady, 2020), which makes studying the associations of institutional belonging with other important indicators a promising step in helping college students successfully matriculate.

Furthermore, the mental health outcomes in this study are mental health problems that if not addressed could lead to more severe mental health illnesses such as depression and anxiety. In the case of loneliness, this study furthers our understanding of the association between institutional belonging and loneliness, in which loneliness has been shown to lead to depression if left untreated (Diehl et al., 2018). Students living in college dorms or campus housing can develop feelings of loneliness because they do not feel connected to their peers (Worsley et al., 2021). Early intervention programs that support institutional belonging could help students connect with other students on campus to create quality relationships and prevent loneliness.

This exploratory study has shown that students with a higher sense of institutional belonging have better mental health outcomes and academic success. Institutional belonging could be used as an early intervention point to help students thrive in the college environment. One area of particular focus in the research literature is on first-year students and how their sense of belonging is a protective factor in their persistence towards a degree (Slaten et al., 2018). The transition from high school to college has been proven to be a difficult challenge for many adolescent students, who often are living away from home for the first time in their lives (Pittman & Richmond, 2007; Worsley et

al., 2021). Results from the present study suggest that the methodology used to assess institutional belonging could be used to assess the efficacy of efforts to improve retention and academic success through enhanced sense of institutional belonging.

Although the results of this study found no significant differences between first-generation and continuing-generation students' sense of institutional belonging, previous research has found first-generation students have a lower sense of institutional belonging than continuing-generation students. Museus & Chang (2021) found that first-generation students had lower levels of belonging and difficulty adjusting to the campus environment. First-generation students dropped out after their first year at a rate four times higher than continuing-generation students (Stebleton et. al., 2014a). By focusing on increasing institutional belonging among first-generation students, a public health intervention program could help to increase academic success and improve mental health among first-generation students.

Future Research

Based on the results of this exploratory study on institutional belonging, future research should focus on the long-term impact institutional belonging has on academic success and mental health outcomes in college students. Ideally, this could be done using a longitudinal study that follows a cohort of college students from their first academic semester until they graduate, transfer, or drop out of college. Additionally, future research should examine the role different types of institutions (i.e., research universities, liberal arts colleges, public and private institutions, etc.) along with how the size and geographic location of the institution affects students' sense of institutional belonging. Another possible focus of future research is a longitudinal study following the

changes in the sense of institutional belonging of 2-year institution college students from their first academic semester until they graduate from a 4-year institution with a focus on how transferring institutions affects their sense of institutional belonging.

The relationship between loneliness and institutional belonging on college campuses is not well-studied and further research on this relationship and its effects on depression and anxiety could lead to early intervention programs to reduce the prevalence of these and other adverse mental health outcomes. Additionally, future research on involvement in campus activities and engagement in the classroom and how these affect the relationship between loneliness and institutional belonging could help institutions improve the campus environment for students.

This exploratory study design used four institutional belonging questions that were introduced in the ACHA-NCHA III survey which has limited longitudinal data. Furthermore, there is a lack of previous research literature to support using the sum of these four institutional belonging questions as a measure of institutional belonging. In the data analysis of this exploratory study, the results were comparable to similar institutional belonging studies using different measures suggesting validity for the approach used. However, a full validation study should be conducted in the future to further confirm the validity of this institutional belonging measure.

Future research should also examine how institutional belonging relates to other factors that contribute to or hinder academic success and mental health outcomes. Since the COVID-19 pandemic, many students have taken all or many of their classes asynchronously online or remote, thus reducing or eliminating their time spent on campus, which limits the ability to form meaningful relationships through in person

contact. Moreover, students who are deprived of these institutional relationships will seek to substitute these relationships with other social relationships such as family or high school friends to fulfill their need to belong which could hinder their ability to form quality institutional relationships because they already are saturated with outside relationships (Baumeister & Leary, 1995). This could cause students to have poorer mental health outcomes and academic success when they return to campus.

Conclusion

The results of this study along with previous research show institutional belonging has a significant association with GPA and the three mental health outcomes: stress, psychological well-being, and loneliness. These results illustrate the importance of institutional belonging in helping students better manage the challenges of higher education. Because of this potential importance, higher education institutions should focus on early interventions to increase students' sense of institutional belonging to improve their mental health and academic success. Based on this exploratory study no specific recommendations can be made with respect to future intervention programs, however it can serve as a means of assessing these future intervention programs.

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APPENDIX

ANCOVA Tables

Table A.1 ANCOVA Output for First-generation Status as a Covariate

Mental Health Outcomes	Type III SS	df	Mean Square	*F*
	Corrected Model			
Psychological Well-being	6896.953	3	2298.984	42.186***
Loneliness	172.082	3	57.361	17.505***
Stress	17.670	3	5.89	10.453***
	First-generation Status			
Psychological Well-being	67.252	1	67.252	1.234
Loneliness	0.375	1	0.375	0.114
Stress	0.058	1	0.058	0.102
	Belonging Groups			
Psychological Well-being	6874.252	2	3437.126	63.071***
Loneliness	172.073	2	86.037	26.256***
Stress	17.533	2	8.766	15.557***

***$p<0.001$

Table A.2 ANCOVA Output for Biological Sex as a Covariate

Mental Health Outcomes	Type III SS	df	Mean Square	*F*
	Corrected Model			
Psychological Well-being	7619.393	3	2539.798	47.535***
Loneliness	6.811	3	2.270	9.739***
Stress	27.276	3	9.093	16.535***
	Biological Sex			
Psychological Well-being	957.705	1	957.705	17.924***
Loneliness	0.012	1	0.012	0.051
Stress	9.731	1	9.731	17.698***
	Belonging Groups			
Psychological Well-being	6477.694	2	3238.847	60.618***
Loneliness	6.811	2	3.406	14.609***
Stress	18.730	2	9.365	17.032***

***$p<0.001$

Table A.3 ANCOVA Outputs for GPA

GPA	Type III SS	df	Mean Square	*F*
	Belonging			
Belonging Group	7.159	2	3.579	11.170***
	First-generation Status			
Corrected Model	10.612	3	3.537	11.225***
First-generation Status	3.731	1	3.731	11.841***
Belonging Group	7.102	2	3.551	11.269***
	Biological Sex			
Corrected Model	9.603	3	3.201	10.083***
Biological Sex	2.445	2	2.445	7.701**
Belonging Group	6.740	2	3.370	10.616***

**$p<0.01$, ***$p<0.001$