

How Can a Wellness and Resilience Course Support Universal Undergraduate Mental Health? A

Mixed-Methods Study

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Abstract

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There is a rising demand for mental health services that far exceeds the amount of treatment services available, leaving many college students without adequate mental health support (Eisenberg et al., 2023). Curriculum-based mental health interventions have been identified as a promising approach to addressing this gap (Conley, 2015; Worsley et al., 2022). The *Wellness and Resilience for College and Beyond* course (WRC; Mazza & Lally, 2017), is an undergraduate course curriculum that teaches evidence-based skills and strategies to improve mental health. Although research has demonstrated promising results regarding the effectiveness of the WRC at a small-scale, the WRC has yet to be examined when delivered at a large universal scale (Chugani et al., 2023). The present study used a convergent mixed-methods design to address this gap and evaluate the impact of the WRC when delivered to a large and

diverse sample of undergraduate students. Quantitative analyses examined change in student mental health outcomes after completing the WRC and course format (virtual vs. in-person) and student characteristics as contributing factors. Qualitative findings were used to understand the relationship between the WRC, student identity, and mental health. Qualitative and quantitative findings were merged to better understand the effectiveness, accessibility, and equitability of the WRC when delivered to a large and diverse body of students.

Quantitative results showed no significant overall changes in mental health outcomes following the completion of the WRC; however, a near-significant trend suggested increases in subjective wellbeing. Further analyses revealed no significant differences across course format and differential patterns of change across student characteristics and WRC class attendance. Qualitative findings indicated the WRC had a predominantly positive influence on student mental health, participants noting how they leveraged the WRC content and activities to help cultivate resilience and subjective wellbeing. Participants also described some negative perspectives of and experiences with the WRC. Together, the findings suggest the WRC is a promising avenue through which to support student mental health in a systematic, accessible, and equitable way. However, more research is needed to better understand the complex relationship between student identity and experiences, the WRC, and student mental health.

Key words: college student mental health, curriculum-based mental health interventions, multi-tiered systems of support, systematic mental health interventions for college students, preventative mental health interventions, contributing factors to college student mental health outcomes

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Chapter 1: Introduction

Approximately one-third of college students globally have a diagnosed mental disorder (Auerbach et al., 2018). In the United States, the percentage of college and university students with mental health problems is even greater. Several studies demonstrate the lifetime prevalence of mental illness among U.S. college and university students reaches nearly 50% (Eisenberg et al., 2023; Kessler et al., 2007; Kodish et al., 2022; Lipson et al., 2018). Not only are the rates of mental illness among college students problematically high, research indicates these rates have increased dramatically over recent decades, particularly following the COVID-19 pandemic (Dave et al., 2024). The rapid increase in mental health problems among college students has overwhelmed campus counseling centers, leaving many students without the appropriate mental health support they need (Kodish et al., 2022; Xiao et al., 2017). With nearly half of young adults in the United States enrolled in higher education institutions, the troubling mental health trends have significant implications for these individuals, higher education institutions, and society at large (Eisenberg et al., 2009; Eisenberg et al., 2023; Lipson et al., 2018). The lack of adequate mental health services available to college students in combination with increasing mental health problems poses a serious public health problem that requires a systematic approach to intervene.

Rates of Mental Illness among College Students

Research consistently demonstrates high rates of mental illness among college and university students both globally and nationwide (Auerbach et al., 2018; Eisenberg et al., 2023; Lipson et al., 2018). In a global study funded by the World Health Organization, Auerbach and colleagues (2018) surveyed nearly 14,000 students from 19 colleges and universities across eight countries, screening for lifetime and 12-month prevalence of six common DSM-IV mood, anxiety, and substance use disorders associated with the highest levels of role impairment for

college students. Results revealed nearly one-third (31%) of respondents reported having at least one of the mental disorders assessed within the last year (Auerbach et al., 2018).

In the United States, research using data from the Healthy Minds Study, a survey administered yearly to over 600 colleges and universities across the U.S., revealed even higher rates of mental illness among college students (Eisenberg et al., 2023). According to the 2022-2023 HMS report, 46% of students had a lifetime diagnosis of a mental disorder, 36% had an anxiety disorder, 41% had mild to severe depression, and 14% had an eating disorder. Additionally, 29% of respondents reported engaging in non-suicidal self-injury in the past year alone. Although convenience sampling was used in the 2022-2023 HMS report, yielding a sample of majority non-Hispanic white students, similar findings have been reported in more racially and ethnically diverse samples (Kodish et al., 2022; Lipson et al., 2018). For instance, Kodish and colleagues (2022) surveyed a diverse sample of 2,090 students from the University of California Los Angeles and found similar rates of depression and anxiety. Nearly one-third (30.6%) of their sample had moderate to severe levels of depression and nearly half (46.2%) had moderate to severe levels of anxiety, aligning with HMS data. Research consistently demonstrates pervasive rates of mental illness among college students both within the U.S. and across the globe.

A Worsening Problem

Rates of mental illness among college students are not only high, but increasing in frequency, severity, and complexity (Duffy et al., 2019; Lipson et al., 2019; Xiao et al., 2017). Longitudinal studies demonstrate significant increases in rates of mental illness among college students over recent decades (Duffy et al., 2019). Specifically, Duffy et al. (2019) examined data from the National College Health Assessment (NCHA) and HMS surveys between 2011 to 2018.

NCHA data revealed that from 2011 to 2018, the 12-month prevalence of depression rose by 34% and anxiety by 24%. Furthermore, the researchers found a 76% increase in past-year suicidal ideation, a 58% increase in past-year suicide attempts, and a 47% increase in past-year self-injury. The researchers also examined HMS survey data from 2012 to 2018. These data revealed the number of students who were severely depressed, had moderate to severe anxiety, engaged in intentional self-injury, and those who reported making a suicidal plan or attempting suicide doubled from 2012 to 2018 (Duffy et al., 2019). Similar results were observed by Lipson and colleagues (2019), who found that rates of depression and suicidal ideation nearly doubled from 2007 to 2019, corroborating these results.

Research from more recent years demonstrates college student mental health problems have continued to increase following the COVID-19 pandemic (Dave et al., 2024). Specifically, Dave and colleagues (2024) conducted a comprehensive review of the literature examining trends of college student mental health during and after the COVID-19 pandemic. Data indicate students seen in college counseling centers across the U.S. following the COVID-19 pandemic reported higher levels of eating concerns, family distress, academic distress, and overall distress than students from the pre-COVID-19 pandemic cohort (Dave et al., 2024). Additionally, a meta-analysis published in 2022 revealed that worldwide rates of anxiety and depression also increased following the COVID-19 pandemic when compared to pre-COVID-19 pandemic data. Overall, research shows a persistent increase in mental health problems among college students over recent decades, with notable escalation following the COVID-19 pandemic (Dave et al., 2024; Duffy et al., 2019; Lipson et al., 2019).

In addition to college student mental health problems increasing in frequency and severity over the last few decades, they have also increased in diversity and complexity. Xiao

and colleagues (2017) analyzed data across university and college counseling centers from 2009 to 2015 and found increases in odds of hospitalization for a mental health concern and suicidal ideation among their sample of college students. In fact, their data from 2015 indicated one-fourth of students seeking services reported having self-harmed and one-third considered suicide. Consistent with these results, data from the National Survey of Counseling Center Directors revealed 95% of its 284 director respondents reported observing an increase in severe psychological problems in their students (Gallagher, 2008). Similarly, Watkins et al. (2011) interviewed college counseling center administrators and found all of the administrators in their study reported observing increases in both the number and severity of mental health problems in college students (Watkins et al., 2011). There has been a clear increase in the number, severity, and complexity of mental health problems among college students in the United States (Gallagher, 2008; Watkins et al., 2011; Xiao et al., 2017).

An Unmet Need

As rates of mental health problems among college students increase, so does the demand for mental health services (Xiao et al., 2017). The rising demand for mental health services has far exceeded the amount of treatment services available, leaving many college students without receiving the mental health support they need. In Xiao and colleagues' (2017) study examining college campus counseling centers from 2009 to 2015, the researchers found on average, the growth of students seeking services from campus counseling centers was more than four times the rate of growth in institutional enrollment. Overall, the counseling centers saw an average increase of nearly 30% in the number of students seeking treatment compared to an average 6% increase in institutional enrollment. These findings demonstrate a disproportionately high increase in students seeking services on college campuses compared to the number of mental

health services available to students, leaving many students without access to adequate mental health support (Xiao et al., 2017).

To understand the discrepancy between the rates of mental health problems among college students and services available, Eisenberg and colleagues (2023) analyzed the 2022-2023 HMS survey data. The researchers found 36% of the overall sample received counseling or therapy for their mental or emotional health from a health professional in the last year. At a glance this may appear promising, however, the data also revealed that of respondents with depression or anxiety, only 46% received counseling or therapy for their mental or emotional health from a health professional in the last year. This suggests more than half of college students with anxiety or depression are in need of mental health services. Consistent with Eisenberg et al.'s (2023) analysis of the 2022-2023 HMS survey data, Lipson and colleagues (2018) found similar results when examining data from a racially diverse sample of HMS survey respondents from 2012-2015. Data from their study also indicated only approximately 40% of students with a mental health disorder reported having ever received mental health treatment.

Disparagingly, Kodish and colleagues (2022) found discrepancies even greater than those revealed in the HMS survey data. In their study using a diverse sample of UCLA students, 81.1% of participants screened eligible for some level of mental health treatment, yet 75% of participants reported no prior history of receiving such services (Kodish et al., 2022). This discrepancy highlights critical issues in mental health service provision and accessibility for college students.

Academic, Social, and Financial Impacts of College Student Mental Health

Unmet mental health needs of college students yield a series of consequences for students, higher education institutions, and society at large (Ashwood et al., 2015; Eisenberg et

al., 2009; Eisenberg et al., 2023; Goodman, 2017). For example, college student mental health problems can have significant detriments on students' academic and financial outcomes (Eisenberg et al., 2009; Eisenberg et al., 2023). Beyond the impact on students, unmet mental health needs of college students also have consequential implications for higher education institutions, including financial consequences and impacts on campus staff and faculty (Ashwood et al., 2015; Goodman, 2017). Furthermore, poor student mental health has consequences that reach beyond the individual and institutional level and into society at large. Conversely, research demonstrates investing in college student mental health yields a series of benefits for students, institutions, and societies (Ashwood et al., 2015; Eisenberg et al., 2009; Eisenberg et al., 2023; Goodman, 2017). In order to improve outcomes for students, higher education institutions, and communities, it is necessary to invest in and address the college student mental health crisis.

Impacts on Academic Performance

Poor student mental health has been associated with lower academic performance, graduation rates, and college drop-out rates (Eisenberg et al., 2009). For example, Eisenberg and colleagues (2009) examined a sample of undergraduate and graduate students in 2005 as well as a subset of the sample in 2007 and found student mental health problems were associated with decreased academic performance. Specifically, the researchers found depression and eating disorders to be significant predictors of lower grade point average (GPA), with higher decreases in GPA for students with both depression and anxiety. In fact, students with both anxiety and depression had an average drop in GPA of 0.4 on a 4.0 scale (Eisenberg et al., 2009).

The mental health implications for college students' academic performance are recognized not just by researchers, but also by students themselves (Eisenberg et al., 2023). Based on the 2022-2023 HMS survey data, 81% of college students reported they felt their

emotional or mental difficulties have hurt their academic performance at least one day in the past four weeks and 22% of respondents felt their emotional or mental difficulties have hurt their academic performance for six or more days in the past four weeks (Eisenberg et al., 2023).

Unchecked student mental health needs have detrimental impacts on student academic outcomes (Eisenberg et al., 2009; Eisenberg et al., 2023).

Economic Implications

Goodman (2017) explored the literature on the implications of college student mental health in the U.S. and found unmet mental health needs of college students not only have academic consequences, but financial implications at the individual, institutional, and societal level (Goodman, 2017). Unmet mental health needs in students were associated with academic impairment, drop-out, reduced employment opportunity, reduced income, poor health outcomes, and even suicide. On the other hand, Goodman (2017) found meeting college students' mental health needs improved academic outcomes for students and decreased attrition rates, yielding increased lifetime earnings for students after they graduate.

Poor college student mental health yields significant consequences not just for students themselves, but for their higher education institutions as well (Goodman, 2017). For example, when students drop out of college or university, the institution and the student both lose their return on investment (Goodman, 2017). Conversely, there are benefits to higher education institutions when student mental health needs are supported. Specifically, the research indicated meeting the mental health needs of college students provides institutional benefits such as, "a safer and more positive campus for students, greater student and faculty satisfaction, and continued stream of tuition from students who remain in college due to supportive services" (Goodman, 2017, p. 39).

In addition to having benefits to students and higher education institutions, research also predicted improved mental health outcomes for college students will generate economic benefit to society (Ashwood et al., 2015; Eisenberg et al., 2009). For example, in the state of California, Ashwood et al. (2015) estimated returns to society and the state government of \$0.98 for every dollar invested into student mental health initiatives, yielding a total of \$56.1 million in net society benefit. Similarly, Eisenberg et al. (2009) estimated a net income return for students of \$860 for obtaining mental health treatment while at university and a \$7 return on investment per student for institutions implementing depression screening and treatment at their institution. Research consistently demonstrates the detrimental economic consequences of unmet college student mental health needs and the host of economic and social benefits on institutions and communities when college student mental health is supported (Ashwood et al., 2015; Eisenberg et al., 2009; Eisenberg et al., 2023; Goodman, 2017).

Staffing Implications

The growing mental health needs of college students puts increased pressure on institutions to staff college campus counseling centers (Gallagher, 2009; Watkins et al., 2011; Xiao et al., 2017). In Gallagher's (2009) study examining survey data from counseling center directors, the researcher found considerable counseling center staff burnout endorsed by respondents. Specifically, 64% of the sample endorsed concerns with counseling center staff burnout and staff shortages. Not only do staff shortages remain a barrier in meeting the mental health needs of students, resources for hiring and training counseling center staff is an additional concern for institutions. For example, in their sample of college counseling centers, Watkins et al. (2011) found that administrators endorsed concerns regarding the physical space and the cost required for hiring and training additional staff.

Need for Different Approach

Amongst facing staff shortages and burnout, college campus counseling centers continue to face an increasing demand for mental health services from their students. Now more than ever, college students are seeking mental health support from services on their college campuses (Lipson et al., 2019). Lipson et al. (2019) found rates of mental health treatment engagement in campus-based services nearly doubled in the past year, increasing from 6.6% to 11.8%. This increase in mental health treatment enrollment outpaced other (non-campus) locations, which increased from 5.2% to only 8.7% (Lipson et al., 2019). With more students seeking mental health services from college counseling centers and a simultaneous increase in counseling center staff shortages and burnout, the gap between the demand for mental health services among college students and services available continues to widen (Lipson et al., 2019; Xiao et al., 2017).

While college counseling centers continue to attempt to manage the increasing mental health needs of college students, limitations such as staff shortages, burnout, and limited resources suggest leaving the responsibility of meeting student mental health needs to college counseling centers is an unsustainable solution (Lipson et al., 2019; Xiao et al., 2017). Even with the resources currently available to students, research suggests a mismatch between the services available and the accessibility, appropriateness, and usability of such services (Eisenberg et al., 2023; Lipson et al., 2018; Xiao et al., 2017). These findings indicate an alternative approach is needed to address the mental health needs of college students.

An Alternative Solution

Rather than continue to perpetuate an unsustainable system, higher education institutions can meet the needs of college students using a systematic, resource-efficient approach (Conley,

2015; Worsley et al., 2022). Specifically, college campuses can provide students mental health support by providing students with skills, tools, and resources for supporting their mental health in a preventive manner through delivering such tools via their college coursework. Ample research provides evidence in support of curriculum-based mental health interventions as preventive and effective in improving mental health outcomes for college students (Conley, 2015; Worsley et al., 2022).

The Wellness and Resilience for College and Beyond Course

One such curriculum developed to improve college student mental health is the *Wellness and Resilience for College and Beyond* course (WRC; Mazza & Lally, 2017). The WRC was developed by Dr. James Mazza and Dr. Jaclyn Lally at the University of Washington in an attempt to fill the gap between need for mental health services and services available to college students. The WRC offers college students skills, information, and resources to improve their mental health while allowing them to earn college credit for doing so. By offering students mental health support through a college course format, WRC alleviates some of the aforementioned barriers students face in accessing and utilizing mental health treatment services (Eisenberg et al., 2023).

The WRC is a 10-week course curriculum designed to provide undergraduate students with the opportunity to learn and practice evidence-based psychotherapy skills to improve their wellbeing and resilience (Mazza & Lally, 2017). The WRC includes several components to provide students the opportunity to learn and practice evidence-based psychotherapy skills. For each week of the WRC, students are taught both the structure of and empirical evidence supporting various evidence-based psychotherapy skills, tools, and strategies during a 170-minute weekly lecture. In addition to attending a weekly lecture, students participate in a weekly

50-minute quiz section during which they are instructed to practice and reflect on the skills and strategies taught during lecture earlier that week through various small group activities and discussions. Each week, students complete and submit two homework assignments: a weekly homework post reflection and weekly Diary Card (Linehan, 1993). Through the weekly homework post reflections, students are instructed to answer prompts to facilitate understanding, practice, and reflection of that week's skills and strategies. Additionally, students submit a weekly Diary Card in which they record and reflect on their skill practice throughout the week. Finally, at the end of the 10-week curriculum, students complete a 5-10 page short answer reflection for their cumulative exam describing how they can use the skills and strategies learned in the WRC to improve their resilience and wellbeing in college and beyond (Mazza & Lally, 2017). A copy of the Week 10 Diary Card, which includes all of the skills taught throughout the WRC is included in Appendix A.

Purpose

While preliminary data supports the effectiveness of the WRC in improving the mental health of college students when delivered on a small-scale format, researchers have yet to examine the impact of the WRC on student mental health when delivered at a large, universal scale to a diverse group of students and/or how the WRC impacts student mental health (Chugani et al., 2023). The present study aims to address these gaps by examining the impact of the WRC on student mental health when delivered at the universal level to a large and diverse group of students. As such, the present study seeks to contribute to the literature examining the effectiveness, equitability, and sustainability of addressing college student mental health problems through large-scale, curriculum-based interventions.

Chapter 2: Literature Review

There is a clear and extensive need for more accessible, equitable, and effective mental health interventions for college students (Eisenberg et al., 2023; Lipson et al., 2018; Xiao et al., 2017). In order to be effective and equitable in addressing the range of mental health problems college students experience, interventions must address contributing risk factors for mental health problems and promote protective factors against mental health problems specific to the college student population (Brown-Chidsey & Bickford, 2016; Conley, 2015; Kay & Schwartz, 2010; Hartley, 2012; Reiter, 2019; Worsley et al., 2022). Additionally, interventions must address systemic barriers in order to be a feasible and sustainable solution (Brown-Chidsey & Bickford, 2016; Conley, 2015; Reiter, 2019; Worsley et al., 2022). Mental health interventions delivered via large-format course curriculums are part of a promising solution to address the gap in mental health services available to college students and yet, no such interventions have been evaluated.

A Perpetuating Problem

Research suggests several factors perpetuate the widening gap between college students' needs for mental health services and services available to them (Eisenberg et al., 2023; Kessler et al., 2007; Kodish et al., 2022; Lipson et al., 2018; Xiao et al., 2017). Rates of mental health problems among college students have grown increasingly high and now more than ever, college students are at an alarmingly high risk for mental health problems (Dave et al., 2024; Duffy et al., 2019). Researchers have identified several factors unique to college students that contribute to their growing risk for mental health problems (Eisenberg et al., 2023; Kessler et al., 2007; Kodish et al., 2022; Lipson et al., 2018). Moreover, the mental health needs of college students far exceed the number of available, accessible, and usable mental health services, further

perpetuating the discrepancy between need for mental health services and services available to college students (Kodish et al., 2022; Xiao et al., 2017).

Contributing Factors

Given that research estimates nearly one-third to half of all college students struggle with a mental disorder and most mental disorders onset before the age of 25, college and university students are particularly at risk for mental health problems (Eisenberg et al., 2023; Kessler et al., 2007; Kodish et al., 2022; Lipson et al., 2018). Several factors specific to college and university students contribute to the increased frequency and intensity of mental health problems in this population seen over recent years. Additionally, research demonstrates certain demographic factors further increase a college student's risk for mental health problems (Lipson et al., 2019; Soria & Horgos, 2021). Understanding risk factors for mental health problems is crucial for identifying effective and equitable interventions to address these factors and improve college student mental health.

Developmental Factors. Attending college or university is a unique period filled with exploration and opportunity. With this increased exploration and opportunity, however, comes instability in relationships, education, and career, yielding many challenges for college students to navigate (Arnett, 2000; Scales et al., 2016; Wood et al., 2017). In fact, research suggests these challenges that come with the unique experience of attending college or university combined with developmental factors of this particular age group elevate a students' risk for mental health problems (Arnett, 2000; Hanson, 2024).

The majority of undergraduate students are between the ages of 18 and 24 in a unique period of development researchers call young adulthood (Arnett, 2000; Hanson, 2024; Silvers & Peris, 2023; Yau et al., 2021). Young adulthood comes with unique challenges individuals must

attempt to navigate and overcome in order to successfully move through this period of development (Erickson, 1994). According to Erikson's (1994) theory of psychosocial development, young adults are primarily concerned with navigating their identities and relationships (Arnett, 2000; Yau et al., 2021). Thus, as young adults, the majority of college students are faced with discovering both who they are (identity) and how they relate to others (relationships; Arnett, 2000; Yau et al., 2021). Researchers have identified this exploration of the self and relationships can yield both positive and negative mental health outcomes for this age group, making these critical areas for intervention (Silvers & Peris, 2023).

Risk-taking. As part of this developmental period, college students are faced with increased freedom as they emerge into adulthood and attend university, yielding many opportunities for decision-making, risk-taking, and self-management (Arnett, 2000, Scales et al., 2016; Wood et al., 2017). Researchers, Silvers and Peris (2023) found risk-taking, a behavior that peaks during this developmental period, has a significant impact on young adults' identity and social development. Specifically, the researchers found that the method and degree to which young adults engage in risk-taking behaviors have differential impacts on their mental health and development. Results revealed engaging in moderate risk-taking fosters successful social and identity development and is conducive to wellbeing. However, the researchers found this relationship was moderated by the type and frequency of the risks young adults engage in. Specifically, the researchers found that engaging in precarious risk-taking behaviors (e.g., unprotected sex, substance use, risky driving behavior, etc.), was associated with negative impacts on mental health. However, they also found that when individuals did not engage in enough risk-taking behaviors, this was also associated with poor mental health outcomes, such as an increased risk for depression. Thus, while too little risk-taking can lead to mental health

problems for college students, engaging in too much risk-taking can be equally problematic (Silvers & Peris, 2023).

Self-regulation. Luckily, research suggests self-regulation may mitigate this relationship between risk-taking, social and identity development, and mental health in young adulthood (Steinberg et al., 2017). Specifically, Steinberg et al. (2017) found that practicing self-regulation while engaging in risk-taking is conducive to positive wellbeing and development for this age group. This finding suggests improving young adults' skills for self-regulation may minimize the potential negative impacts of risk-taking on mental health and support students in successfully navigating their social and identity development by engaging in healthy risk-taking behaviors.

Tolerating Ambiguity. The freedom brought by attending university and young adulthood can feel overwhelming and exciting for college students (Silver & Peris, 2023). Managing uncertainty is a natural part of young adult development as their neurological structures interact with their innately prosocial predisposition to increase their tolerance for ambiguity. However, how young adults interpret this ambiguity may impact their mental health. Silvers and Peris (2023) found negatively interpreting ambiguity has been linked to elevated levels of anxiety and worse learning in young adults. Furthermore, they found that decreased reward sensitivity and intolerance for ambiguity was associated with higher levels of depression. On the contrary, they also found individuals that have a high tolerance for ambiguity tend to engage in more reckless risk-taking behaviors, which may have other negative health and mental health consequences (Silvers & Peris, 2023). This research suggests engaging in extremely high or extremely low levels of risk-taking may lead to poor mental health consequences for college students. However, more research is needed to understand the complex relationship between risk-taking behaviors, self-regulation, sensation-seeking, and mental health. Nonetheless,

providing students with skills to tolerate ambiguity and engage in a moderate, yet healthy number of risk-taking behaviors could be beneficial in supporting college student mental health.

Neurological Factors. Research suggests neurological factors specific to young adulthood also play a role in college students' increased risk for mental health problems (Kozlov, 2022; Pfeifer & Allen, 2020; Seera & Mateer, 2014). Unique neurological changes occur during the ages of 18-25; white matter volume peaks, cortical thickness and gray-matter volume decreases, ventricular volume increases, and the frontal lobe continues to develop. Additionally, neurological functional connectivity continues up until the age of 22 (Kozlov, 2022; Pfeifer & Allen, 2020). These neurological structures are associated with certain cognitive and social functioning processes that may impact the risk for mental illness for this age group. For example, the frontal lobe is responsible for cognitive processes, including planning, initiation, self-monitoring, novel problem solving, judgment, and self-regulation (Seera & Mateer, 2014). Since the frontal lobe and its associated functions are still developing during the typical college years, deficits in these areas could exacerbate symptoms of mental illness. Conversely, research has demonstrated interventions that target these skills with college students, such as mindfulness interventions, are associated with improved mental health, making this another area of intervention to target (Conley, 2015; Kay & Schwartz, 2011; Worsley et al., 2022).

While a developing frontal lobe may pose increased risk for college student mental health problems, other neurological changes during this time period make it a unique opportunity for students to protect or improve their mental health (Paus et al., 2008). For instance, increases in functional connectivity and maturation are associated with quick and malleable learning, making this developmental period an opportunity for students to develop positive coping strategies conducive of wellbeing (Paus et al., 2008). Higher education institutions can leverage the rapid

and malleable learning to effectively teach college students skills, strategies, and routines that promote wellbeing and reduce their risk for mental illness.

Interpersonal Factors. For many students, attending college means spending less time with family members, increased time with peers, and forging new relationships (Arnett, 2000; Scales et al., 2016; Wood et al., 2017). Successfully establishing and maintaining these interpersonal relationships is crucial to college student mental health (Karyotaki et al., 2020; Silvers & Peris, 2023). Researchers have found thwarted interpersonal relationships, social isolation, and loneliness to be associated with poor mental health among college students whereas strong social supports were found to be associated with positive mental health and protective against mental illness (Karyotaki et al., 2020; Silvers & Peris, 2023). Thus, depending on their nature and quality, relationships can either be a risk or protective factor for college student mental health, highlighting interpersonal skills as a key target for intervention.

Stress associated with interpersonal relationships and a thwarted sense of belonging has found to be associated with poor mental health for college students (Dave et al., 2024; Karyotaki et al., 2020). In Karyotaki et al.'s (2020) analysis of global college student survey data, the researchers found that stress involving a student's love life was significant in predicting all six mental disorders (major depressive disorder, mania/hypomania, generalized anxiety disorder, panic disorder, alcohol and drug abuse or dependence, ADHD) they assessed for. Additionally, stress involving relationships with family members was significantly predictive of four of the six mental disorders and stress involving problems with loved ones was significant in predicting one of the six mental disorders. These data demonstrate a clear association with interpersonal stress and mental illness for college students. Consistent with these findings, Dave and colleagues' (2024) meta-analysis on college student mental health, revealed that research repeatedly

demonstrates student exposure to interpersonal trauma is associated with increased symptoms of depression and social isolation. Ample research provides evidence to suggest interpersonal stress and trauma is associated with increased risk for mental illness among college students, making this a key target for intervention (Dave et al., 2024; Karyotaki et al., 2020).

While interpersonal stress is associated with increased risk for mental health problems among college students, positive social connection has been found to be a significant protective factor against mental illness and a positive contributor to student mental health (Dave et al., 2024; Soria & Horgos, 2021). In Dave et al.'s (2024) meta-analysis on college student mental health, many studies showed social connectedness to be negatively correlated with depression and anxiety. The research also identified social connectedness as a particularly important factor for resiliency and a strong predictor of psychological health for college students. Consistent with Dave et al.'s (2024) findings, when examining data from the COVID-19 pandemic, Soria and Horgos (2021) found that college students who felt a greater sense of belonging during the pandemic had a decreased odds of MDD and GAD. Since college is a time when students often leave their social supports (i.e., families and communities) and/or live independently for the first time, they are likely at a greater risk for thwarted belongingness and poor mental health outcomes. These data suggest positive peer relationships and meaningful social interactions reduce a student's risk for mental health problems, once again emphasizing interpersonal skills as an essential target for intervention.

Educational Factors. Beyond navigating their social and identity development, college students also face challenges in navigating the rigorous demands of academics within higher education (Dave et al., 2024). Researchers have found stress related to academic performance, schoolwork, and institutional factors were linked with increased odds of having a mental illness

among college students (Auerbach et al., 2018; Dave et al., 2024; Karyotaki et al., 2020). For example, in Karyotaki et al.'s (2020) analysis of the World Health Organization's World Mental Health Surveys International College Student Initiative (WHO-WMHSIC) data, they found that stress involving work and school were significant in predicting three out of the six mental disorders they assessed for. Additionally, Dave and colleagues' (2024) meta-analysis investigating college student mental health revealed that academic factors such as high levels of academic stress, a high academic load, unfamiliarity with teaching and assessment methods, and lack of immediacy of feedback contributed to feelings of frustration and helplessness among first-year college students during the pandemic, suggesting academic stress is a contributor to poor student mental health. These findings suggest providing students with skills and strategies to manage stress associated with academics may help reduce students' risk for associated mental health problems.

Factors that Elevate Risk for College Student Mental Health Problems

Overall, college students are at an elevated risk for mental illness (Auerbach et al., 2018; Dave et al., 2024; Duffy et al., 2019). However, research indicates some college students are at an even greater risk of having mental health problems (Auerbach et al., 2018; Duffy et al., 2019; Kodish et al., 2022; Lipson et al., 2019; Liu et al., 2019; Soria & Horgos, 2021). Specifically, research suggests various demographic, background, and institutional factors further elevate a student's risk for mental health problems. Understanding which students are at the greatest risk for having mental health problems is a key step in identifying systematic, effective, and equitable large-scale interventions that address the mental health needs of diverse groups of students.

Gender Identity. Several studies demonstrate disproportionate rates of mental health problems among college students of various genders (Auerbach et al., 2018; Duffy et al., 2019;

Liu et al., 2019; Soria & Horgos, 2021). Specifically, research indicates that transgender and female-identifying students experience higher rates of mental health disorders compared to their male and cisgender counterparts (Auerbach et al., 2018). For example, in Auerbach et al.'s (2018) analysis of college and university students worldwide, the researchers found positive correlates of both lifetime and 12-month mental health disorder prevalence for transgender and female identifying students. The data showed that students who identified as transgender or "other" gender had a lifetime prevalence of mental health disorders of 76.5%, more than double that of the overall sample of 35% (Auerbach et al., 2018).

Consistent with Auerbach et al.'s (2018) data from the global sample, research on college students in the U.S. demonstrated similar gender disparities (Duffy et al., 2019). The 2015 NCHA survey data from a sample of 67,308 U.S. undergraduate students revealed more than 50% of transgender students in the sample reported having received a mental health diagnosis compared to 25% of the overall sample (Liu et al., 2019). Additionally, the researchers found transgender students are at an increased risk for suicide. More than two-thirds of transgender students in the sample reported engaging in self-injury, compared to just 20% of their counterparts. One-third of transgender students in the sample reported a history of a suicide attempt as compared to 9% in the overall sample. Finally, more than half of transgender students in the sample endorsed suicidal ideation as compared to one-fifth of the overall sample (Liu et al., 2019). Consistent with Liu et al.'s (2019) findings, data from a survey administered by Soria and Horgos (2021) in 2020 revealed that cisgender men had significantly reduced odds of major depressive disorder and generalized anxiety disorder as compared to cisgender women and nonbinary individuals. Not only are these gender disparities in mental health problems high, they are getting worse (Duffy et al., 2019). Data from NCHA surveys across 2011 to 2018 revealed

larger increases in rates of depression and suicide-related outcomes for female-identifying students compared to male-identifying students (Duffy et al., 2019).

Unfortunately, limited research exists on mental health outcomes for non-binary and other gender identifying college students and more research is needed in this area. Despite this limitation, existing research demonstrates a clear disproportionate risk for female-, trans-, and non-gender binary-identifying college students for having mental health problems (Duffy et al., 2019; Liu et al., 2019; Soria & Horgos, 2021). These findings highlight the need for mental health interventions to be responsive for these particular sub-groups of college students.

Sexual Identity. Research demonstrates college students holding non-heteronormative sexual identities are also at an increased risk for mental health problems (Auerbach et al., 2018; Liu et al., 2019). Auerbach and colleagues (2018) found that globally, students who endorsed feelings of some same-sex attraction to same-sex intercourse had *three-fold elevated odds* of having a mental health disorder as compared to heterosexual individuals without same-sex attraction (Auerbach et al., 2018). Congruently, in the U.S., Liu et al. (2019) found gay/lesbian and bisexual students had increased risk for mental health problems as well as increased risk for suicidal ideation and behaviors. In their sample of over 67,000 undergraduate students, the HMS survey data (2015) revealed that gay and lesbian students were two to three times more likely to report suicidal ideation and attempt suicide as compared to the overall sample. Additionally, from the sample, more than half of bisexual students reported suicidal ideation and self-harm (more than double that of the overall sample) and more than 25% reported having attempted suicide compared to 9% of the overall sample (Liu et al., 2019). A more recent survey from 2020 found results consistent with previous research. Soria and Horgos (2021) found that heterosexual students had significantly reduced odds of major depressive disorder (MDD) and generalized

anxiety disorder (GAD) and queer and asexual students had significantly greater odds of MDD and GAD compared to their peers. These disparities necessitate inclusive and affirming mental health interventions for students holding non-heteronormative sexual identities.

Race/Ethnicity. Significant disproportionalities have been found in rates of mental health problems among students of color (Kodish et al., 2022). In Kodish and colleagues' (2022) study surveying students at UCLA, they found rates and symptoms of depression, anxiety, and suicidality differed across various racial/ethnic groups. Specifically, the researchers found that Black/African American students were significantly more likely to have more severe symptoms of depression as compared to other racial/ethnic groups and Latinx and multiracial students were significantly more likely to be in a more severe depression category as compared to non-Hispanic white students. Black/African American students and Latinx students were also significantly more likely to be in a more severe anxiety category relative to non-Hispanic white students. Finally, Black/African American, Latinx, and Asian American students were significantly more likely to screen positive for suicide risk as compared to non-Hispanic white students (Kodish et al., 2022).

Survey data from higher education institutions across the U.S. also demonstrates disproportionalities across racial/ethnic groups (Lipson et al., 2018; Liu et al., 2019). Specifically, HMS survey data revealed that Arab/Arab American students had the highest prevalence of mental health problems across racial/ethnic groups (Lipson et al., 2018). Additionally, NCHA data from 2018 revealed that Asian students exhibited significantly higher levels of suicidal ideation and suicide attempts than white students, despite lower rates of mental health diagnoses (Liu et al., 2019). Data also showed multiracial students had significantly elevated rates of suicidal ideation and suicide attempts than White students.

More research is needed to understand the full complexity of the relationship between a student's racial/ethnic identity and mental health. Understanding these differences is crucial for developing culturally sensitive interventions equitable to all students. Nonetheless, research consistently shows students of color are at an elevated risk for mental health problems (Kodish et al., 2022; Lipson et al., 2018; Liu et al., 2019). Mental health interventions for college students should therefore ensure responsiveness to students of all racial and ethnic identities, with particular attention to students of color.

Family and Background Variables. Research suggests certain family and background variables increase a college student's risk for mental health problems (Soria & Horgos, 2021). In 2020, Soria and Horgos (2021) administered a survey to over 27,000 students across eight large public research universities in the U.S. to examine the relationships between students' individual, interpersonal, health and safety, and stressor factors and their risk for clinically significant MDD and GAD. They found that socioeconomic class, disability status, family responsibilities, food and housing security, and living conditions impacted students' risk for MDD and GAD. Specifically, the researchers found that students who cared for adults during the pandemic, those with neurodevelopmental or cognitive disabilities, and those with food and housing insecurity had increased odds for MDD and GAD. They also found that students from upper-class backgrounds and those living free from emotional or physical violence where they felt safe and protected had significantly lower odds of GAD and MDD (Soria & Horgos, 2021). While this data was taken during the COVID-19 pandemic, it illuminates risk-factors for students that may be more vulnerable to stressors, putting them at a greater risk for mental health problems.

Financial Stress. Karyotaki et al. (2020) examined data from the WHO-WMHSICSI to understand how various types of stress (financial situation, own health, relationships with family,

health and wellbeing of loved ones, and other problems experience by loved ones) predicted past-year prevalence of six common mental disorders (major depressive disorder, mania/hypomania, generalized anxiety disorder, panic disorder, alcohol and drug abuse or dependence, attention-deficit hyperactivity disorder (ADHD)). After controlling for socio-demographics, country, gender, age, sexual orientation, religion, parental education, marital status of parents, and high school ranking, the researchers found that student stress involving financial situations was significant in predicting all six types of mental disorders (Karyotaki et al., 2020). Similarly, Eisenberg et al. (2009) found depressed or anxious students more often reported having grown up in a poor family. These data indicate students experiencing poverty and other financial stress are at an elevated risk for mental health problems (Eisenberg et al., 2009; Karyotaki et al., 2020). Thus, it is important for interventions to provide college students with tools for managing financial stress to be effective in reducing mental health disparities and overall risk for mental health problems.

Trauma. Trauma was also found to be a significant predictor of student mental health diagnoses (Gomez, 2021; Liu et al., 2019). In Liu and colleagues' (2019) analysis of the 2015 NCHA survey data, the researchers found that students who reported experiencing at least six events that were traumatic or very difficult to handle in the last 12 months had rates of mental health diagnoses three to 16 times higher than those experiencing no such events. Additionally, stress exposure that was traumatic or very difficult to handle was associated with a twofold increase in the likelihood of suicidal ideation and stressful events were a strong predictor of mental health diagnoses generally among participants. While Liu et al. (2019) did not assess directly for post-traumatic stress disorder (PTSD), in a study conducted at a U.S. public university using a large ethnically diverse sample of students, Gomez (2021) found that 20% of

the sample reported clinically relevant symptoms of PTSD. These data suggest experiencing trauma significantly increases a college student's risk for mental health problems.

First-Generation Students. First-generation college students are students whose parents and caregivers did not attend college or university. Ample research indicates first-generation college students are less prepared and equipped with fewer resources to navigate challenges often associated with the transition to college, including how to manage finances, academic workload, connect with systems of support, etc. than non-first-generation college students (Jenkins et al., 2013; Rockwell & Kimel, 2025). In a systematic review of 62 studies examining first-generation college students' mental health, results revealed that while overall, first-generation college students show similar rates of mental health problems as non-first-generation college students, first-generation college students are at a greater risk for mental health problems when academic and social contexts conflict. These findings indicate a significant interaction between social and academic demands and support and first-generation college students' mental health (Rockwell & Kimel, 2025). Another study comparing mental health rates and life satisfaction of first-generation college students and non-first-generation college students found that first-generation college students had higher levels of PTSD symptoms and lower life satisfaction and social support as compared to non-first-generation college students, but similar levels of depression (Jenkins et al., 2013). These studies suggest a nuanced relationship between the transition and demands of college life and mental health outcomes for first-generation college students.

College students face a number of stressors related to financial, familial, and intrapersonal factors. These factors are important to consider in developing, selecting, and implementing mental health interventions for college students to ensure interventions are

effective for students from a variety of backgrounds. Additionally, the aforementioned research demonstrates the importance of providing students skills to help manage some of these stressors to reduce the impact of such stressors on their wellbeing.

Institutional and educational factors. Research suggests certain institutional and educational factors may also elevate a student's risk for having unaddressed mental health problems (Lipson et al., 2015; Liu et al., 2019; Soria & Horgos, 2021). For example, research indicates international and transfer students are at increased risk for mental health problems and institutional factors such as size and location are associated with higher rates of mental health problems among attending students (Lipson et al., 2015; Liu et al., 2019; Soria & Horgos, 2021). These institutional and educational factors are important to identify in order to implement effective mental health interventions appropriate for various higher education institutions.

Institutional Factors. Certain institutional factors are associated with differing rates of mental illness (Lipson et al., 2015; Liu et al., 2019). Lipson et al. (2015) analyzed HMS survey data from 2007 to 2013 to explore institutional factors contributing to student mental health outcomes. The data demonstrated rates of depression, anxiety, and suicidal ideation were higher among students on non-residential campuses as compared to campuses that were highly residential, the least competitive institutions as compared to the highest competitive institutions, and institutions with low graduation rates as compared to high graduation rates. Additionally, students at public institutions and nonresidential campuses had higher odds of meeting the diagnostic criteria for depression, anxiety, suicidal ideation or any mental health problem as compared to students attending private and residential institutions. Soria and Horgos (2021) also found institutional factors impacted student risk of MDD and GAD such that students who felt valued at their institutions and who felt their institutions supported them during the pandemic

had decreased odds of MDD and GAD. Various factors related to the institution have differential impacts on attending students' risk for mental health problems.

Student Status. Student resident and transfer status are also associated with increased risk for mental health problems (Liu et al., 2019; Soria & Horgos, 2021). Liu et al.'s (2019) analysis of 2015 NCHA survey data revealed transfer students were more likely than non-transfer students to have anxiety related mental health diagnoses, to engage in self-injury, and to attempt suicide. Consistent with Liu et al.'s (2019) findings, Soria and Horgos (2021) found that within a large sample of U.S. students, transfer students had significantly greater odds of GAD as compared to non-transfer students. HMS survey data revealed international students are also at an elevated risk for having unaddressed mental health problems (Lipson et al., 2018). Specifically, the data indicated international students are significantly less likely to receive treatment for their mental health problems as compared to non-international students (Lipson et al., 2018).

Several institutional and educational factors may influence a student's risk for mental health problems, as reported above (Lipson et al., 2015; Liu et al., 2019; Soria & Horgos, 2021). It is important to consider institutional factors such as the size, type, and location of the higher education institution in order to implement effective and resource-efficient interventions for supporting student mental health. Additionally, it is important to consider which students may be at an elevated risk, such as transfer and international students, to ensure mental health interventions appropriately meet the needs of these students.

An Unsustainable Gap in Mental Health Services

Overall, college students are at an increasingly high risk for having mental health problems (Auerbach et al., 2018; Dave et al., 2024; Duffy et al., 2019). As rates of mental illness

skyrocket among college students, institutions are faced with an increasingly high demand to meet the mental health needs of their students (Watkins et al., 2011; Xiao et al., 2017).

Institutions and organizations consistently fail to meet the mental health needs of college students as they struggle with limited resources to address these needs (Prince, 2015; Gallagher, 2009). Furthermore, research suggests the limited services that are available to college students, may not be appropriate or usable, thus further sustaining the gap between the need for mental health services for college students and services available. Research suggests the current mental health service system for college students is unsustainable and ineffective in meeting their mental health needs (Watkins et al., 2011; Xiao et al., 2017). Thus, in order to ensure sustainable and effective mental health interventions for college students moving forward, the fallibilities of the current mental health system must be examined.

Issues in the Availability, Accessibility, and Usability of Effective Mental Health Interventions

The mental health needs of college students far exceed the mental health services available to them (Auerbach et al., 2018; Eisenberg et al., 2023). Moreover, the mental health services that are available to them may not be appropriate, accessible, or usable for college students (Eisenberg et al., 2023; Gallagher, 2009; Lipson et al., 2018; Xiao et al., 2017).

Research reveals several fallibilities in existing mental health services that perpetuate unmet mental health needs among college students (Eisenberg et al., 2023; Gallagher, 2009; Lipson et al., 2018; Lipson et al., 2019; Watkins et al., 2011; Xiao et al., 2017).

Availability. There is an overall shortage of mental health services available for college students (Eisenberg et al., 2023; Gallagher, 2009; Lipson et al., 2018; Xiao et al., 2017).

Research suggests college counseling centers are overwhelmed by the mental health needs of their students and that limited resources hinder their ability to meet the demand for services

(Xiao et al., 2017). Data from Xiao and colleagues (2017) indicated most college counseling centers are operating at or above capacity, leaving many college students without the support they need. In addition, college counseling centers have seen a notable increase in the frequency, severity, and complexity of mental health needs of college students, leading to problems such as counseling center staff shortages and burnout, shorter treatment session limits, long waitlists for services, and greater outside referrals. Gallagher (2009) found the increased demand for more specialized services forced the majority of counseling centers in their sample to decrease their focus on students with less severe mental health problems and to end some student treatment prematurely, further limiting the availability of adequate mental health services.

The lack of available mental health resources leaves an increasing amount of college students without the support they need (Gallagher, 2009; Eisenberg et al., 2023; Lipson et al., 2018; Xiao et al., 2017). Data consistently demonstrate that approximately half of students with mental health problems are not receiving counseling or therapy from a mental health professional (Eisenberg et al., 2023; Lipson et al., 2018). Taken together, these data indicate the current reactive 1:1 mental health model is an ineffective and unsustainable solution to addressing the extensive mental health needs of college students and emphasize the need for a systematic and sustainable solution to this problem.

Discrepancies in Availability. Beyond the sheer size of demand for mental health services, college counseling centers are also seeing more diverse mental health needs from students (Prince, 2015). Higher education institutions are diversifying as colleges and universities continue to globalize (Prince, 2015). The lack of mental health providers trained in culturally responsive services contributes to the unavailability of adequate mental health treatment as well as mental health staff burnout (Prince, 2015; Watkins et al., 2011).

The above findings are consistent with data revealing students from certain demographic groups are even less likely to receive the mental health treatment they need (Kodish et al., 2022; Lipson et al., 2018). Kodish and colleagues (2022) found disproportionate rates of mental health treatment across racial/ethnic groups. Specifically, the researchers found Asian American and Latinx college students were significantly less likely to report having received previous mental health treatment or diagnoses as compared to non-Hispanic white students (Kodish et al., 2022). They also estimated that roughly 80% of Asian college students with mental health problems go untreated, with international students even less likely to receive mental health services. Consistent with these findings, Lipson et al.'s (2018) study revealed Asian students have 51% lower odds of receiving mental health therapy as compared to their peers. Their data also revealed differences in mental health treatment across gender with female-identifying students being more likely than male-identifying students to report having received treatment. There is a clear shortage of mental health services available to college students with some students at a disproportionate risk of not receiving the mental health services they need (Kodish et al., 2022; Lipson et al., 2018).

Accessibility. In addition to a limited number of mental health services available to college students, research also suggests the services that are available are not always accessible (Eisenberg et al., 2023). Data from the 2022-2023 HMS survey exposed barriers to college students accessing mental health services (Eisenberg et al., 2023). The results revealed the number one factor students endorsed as a barrier to receiving mental health services was time. Specifically, 24% of students reported they did not have enough time to receive mental health services. Financial reasons and preference were also commonly endorsed by respondents as barriers in accessing mental health services. Of respondents, 21% endorsed financial reasons,

such as treatment being too expensive or not covered by their health insurance, as to why they received fewer services for their mental health than otherwise. Other barriers identified through the survey included students' uncertainty regarding where to find mental health treatment (15%) and difficulty finding an available appointment (11%). An additional 7% of respondents reported they felt people providing the mental health services did not understand them and 4% of respondents endorsed privacy concerns as a barrier to utilizing services. Finally, 21% of students reported they preferred to deal with their mental health issues on their own or with support from family members and/or friends (Eisenberg et al., 2023). These data indicate students face several barriers in accessing mental health services and many even prefer to deal with their mental health problems on their own. Interventions should aim to overcome such barriers to be accessible for college students.

Usability. Even when services are available and accessible, research suggests existing services may not appropriately fit the needs of college students (Kodish et al., 2022). In a study conducted by Kodish and colleagues (2022), the researchers found that even when students qualified for mental health treatment services and were invited to participate in treatment, only 8.7% enrolled and initiated the use of treatment. These findings suggest that even when services are available and accessible to college students, barriers exist in students utilizing such services.

Stigma. One factor that impacts the usability of available mental health services are college students' beliefs and attitudes about receiving mental health support (Lipson et al., 2018; Lipson et al., 2019). To understand the relationship between students' beliefs and attitudes about mental health services and utilization of such services, Lipson et al. (2018) and Lipson et al. (2019) analyzed HMS survey data. The researchers examined both personal and perceived stigma among college students. Personal stigma was classified as those that agree with the

statement, “I would think less of a person who has received mental health treatment” and perceived stigma was classified as those that agree with the statement, “most people think less of a person who has received mental health treatment” (Lipson et al., 2019, p. 61). Optimistically, their analyses showed decreasing trends in both personal and perceived stigma among college students from 2007 to 2017. Unfortunately, however, some students endorsed higher levels of both perceived and personal stigma than others with discrepancies shown across race and gender groups. This is concerning as stigma was found to be associated with lower odds of help-seeking for treatment. Across gender, males had higher levels of perceived and personal stigma as compared to females. Across racial groups, 63% of African American students in the sample endorsed perceived mental health stigma and 23% of Asian students in the sample endorsed personal stigma, the highest out of any racial/ethnic group. These results are consistent with their finding that of students in the sample with mental health problems, students of color have lower odds of help-seeking. This is problematic as it suggests students of certain racial/ethnic groups are at a disproportionate risk of not receiving mental health services. Stigma therefore continues to remain a barrier to college students accessing and utilizing mental health services. Thus, in order to be appropriate and usable for college students, interventions attempt to overcome stigma as a barrier.

Impacts of Technology. Other research has explored the use online mental health resources to improve mental health treatment utilization for college students and has revealed mixed results (Davies et al., 2014; Dunbar et al., 2018; Kodish et al., 2022). Research has shown college students may favor online mental health services and are generally willing to use such services when offered (Dunbar et al., 2018). Research has also demonstrated online mental health treatment interventions to be effective in improving college student mental health (Davies

et al., 2014). Kodish and colleagues (2022) examined this phenomenon further and found online mental health treatment may mitigate racial discrepancies in utilization of mental health services often seen with in-person mental health services. However, their research also demonstrated poor online mental health treatment adherence and completion by college students in their sample. More research is needed to understand how online mental health resources may improve the accessibility and usability of mental health services for college students.

Differences Across Institution Type. Interestingly, research demonstrates differing rates of treatment utilization across various types of institutions (Lipson et al., 2015). Specifically, Lipson and colleagues (2015) found rates of treatment utilization were lower at large student-enrollment institutions compared to small student-enrollment institutions. Additionally, treatment utilization at nonresidential campuses was significantly lower than treatment at higher residential campuses. The rate of treatment utilization at private institutions was also significantly higher as compared to treatment utilization at public institutions. Moreover, the researchers found that the rate of treatment utilization for mental health problems at doctorate-granting institutions was significantly lower than treatment utilization at baccalaureate colleges. These data indicate institutional factors are correlated with weaker mental health treatment utilization by college students (Lipson et al., 2015). These factors are important to consider in implementing resource-efficient interventions that are appropriate for a specific institution and usable for its' students.

The Need for a Different Approach

As demand for counseling center services continues to outgrow campus enrollment, it is unlikely existing college counseling centers are equipped to meet the increasingly severe and complex mental health needs of their students (Gallagher, 2009; Xiao et al., 2017). Institutional barriers, such as limited trained staff and other resources, combined with students' lack of time,

financial resources, and limiting beliefs create an unsustainable and widening gap in accessible and appropriate mental health services for college students (Eisenberg et al., 2023; Gallagher, 2009; Lipson et al., 2018; Xiao et al., 2017). The aforementioned data indicate a strong need for a more systematic and sustainable approach to meet the mental health needs of college students.

School-Based Mental Health Services as a Promising Solution

Despite the limitations of campus-based mental health services, the majority of college students continue to seek and receive mental health services on their college campuses (Francis & Horn, 2017; Lipson et al., 2019). Moreso, research provides several advantages to delivering mental health services to college students through their institutions, making it a logical setting in which to address the mental health needs of college students (Francis & Horn, 2017; Owens et al., 2007). Research demonstrates encompassing mental health services within higher education institutions increases the accessibility, utility, and equity of mental health services and alleviates some of the previously identified barriers to students accessing effective mental health services (Francis & Horn, 2017; Owens et al., 2007). Thus, despite limitations, providing mental health services on college campuses remains a promising solution to closing the gap between college students' need for mental health services and services available to them.

College students are more likely to seek and receive mental health services on their college campuses than elsewhere (Francis & Horn, 2017; Lipson et al., 2019). Francis and Horn (2017) compiled findings from several college counseling center surveys across the U.S. and found college students are more likely to access and utilize school-based mental health services as compared to community services. This is consistent with Lipson and colleagues (2019) study, which demonstrated mental health treatment engagement by college students is increasingly higher in campus-based services than in non-campus locations. College students are more likely

to seek mental health services on their college campuses as compared to other locations, making it a sensible to provide services where the demand is.

Findings from Owens et al. (2007) and Husky et al. (2011) provide further evidence that offering mental health services on college campuses improves the accessibility and equity of such services. Specifically, Owens et al. (2007) explored the accessibility, usability, and equity of college counseling centers by examining the success rates of student referrals to outside mental health services. The researchers found when students were referred to services outside of the campus counseling center, nearly half (42%) were unsuccessful in connecting with a mental health provider. Furthermore, their study showed that students of color had significantly lower rates of successful referrals than white students and that lack of financial resources was frequently endorsed as a barrier to successfully connecting with an outside mental health provider. Complementary to Owens et al.'s (2007) findings, Husky et al. (2011) examined a counseling center's triage system and found greater attendance rates, client satisfaction, and accessibility of initial crisis sessions when students were referred within the counseling center as compared to when they were referred to services outside of the counseling center. Since referrals to college campus-based mental health providers increases a student's likelihood of establishing mental health treatment and adhering to treatment, providing mental health services within higher education institutions is likely to increase access to and continuity of mental health services for college students, particularly for students of color.

Finally, there are several other benefits to delivering mental health interventions within college campuses (Prince, 2015). Higher education institutions inherently hold many advantages as a setting in which to provide mental health services as compared to clinical settings. For example, they are naturally well equipped to develop, evaluate, and disseminate best practices.

Additionally, higher education institutions uniquely provide a single integrated setting that encompasses students' career, social, and health services all in one, making it advantageous for students to access mental health support in the same location (Prince, 2015).

A Sustainable, Systematic Approach

Campus-based mental health services are an equitable and accessible avenue through which to provide mental health services to college students (Francis & Horn, 2017; Owens et al., 2007; Lipson et al., 2019). However, the existing mental health services available on college campuses are operating with an unsustainable model as counseling centers continue to face staff and resource shortages and demands for mental health services increase (Gallager, 2009; Xiao et al., 2017). Luckily, researchers have identified a possible solution: a public health model approach. Public health models take a preventive and proactive approach to problem-solving, promoting a sustainable and resource-effective solution to meet the mental health needs of college students (Kay & Schwartz, 2010; Prince, 2015).

Multi-tiered Systems of Support. One preventive public health model used to address mental health problems within systems of education is multi-tiered systems of support (MTSS). MTSS is a proactive framework drawn from the public health field that has successfully been used in K-12 education settings to address issues and improve systems within education (Brown-Chidsey & Bickford, 2016). MTSS is a systemic, preventive, data-driven, and tiered approach to intervention that is resource efficient (Brown-Chidsey & Bickford, 2016). MTSS has demonstrated success in improving mental health outcomes for students in the K-12 education setting and is a viable solution to addressing the mental health needs of students in higher education (Durlak et al., 2011; Sanchez et al., 2018).

In using MTSS to address student mental health problems, mental health supports are delivered at three levels: primary/universal, secondary/selected, and tertiary/indicated (Brown-Chidsey & Bickford, 2016). Within the MTSS model, schools provide *universal* mental health services to all students as a means to address and prevent mental health problems for approximately 80% of students. For approximately 15-20% of students, *selected* interventions are provided for students at an elevated risk for mental health problems and/or for those in need of additional supports. Finally, for the remaining 1-5% of students whose needs are not met through universal and selected supports, more *indicated* and/or intensive interventions are delivered. Schools can improve the cost, accessibility, and equity of mental health services for college students through using a MTSS approach. To be effective in addressing student mental health needs, interventions within MTSS should include strong universal social-emotional curriculums and behavioral supports, progress monitoring and data-based decision making, and the use of evidence-based and culturally responsive interventions (Brown-Chidsey & Bickford, 2016).

There is ample support for the effectiveness of MTSS to address student mental health problems in K-12 education settings making it a promising solution to address the same problems for college students (Durlak et al., 2011; Sanchez et al., 2018). In 2018, Sanchez et al. conducted a meta-analysis of school-based mental health services across all three tiers of support implemented in the K-12 setting. A total of 43 randomized control trial studies, including nearly 50,000 students, were included in their review. Across all tiers and outcomes, studies yielded significant effect sizes for school-based mental health services and no significant differences in outcomes were seen across student socioeconomic status or race/ethnicity (Sanchez et al., 2018).

This research emphasizes the effectiveness of addressing student mental health problems using a MTSS framework.

As indicated above, providing support services at a tier one (universal) level is integral to effectively using MTSS to improve student mental health (Brown-Chidsey & Bickford, 2016). Providing all students with an intervention to improve their mental health helps prevent students from needing more indicated services and overwhelming systems (i.e., counseling centers). To assess the effectiveness of tier-one mental health interventions in improving student mental health, Durlak et al. (2011) conducted a meta-analysis of the impacts of universal (tier one) social-emotional learning (SEL) programs delivered in K-12 schools. The review included 213 studies involving over 270,000 students. The researchers found universal SEL interventions had significant positive effects on student mental health and academic outcomes. Specifically, compared to controls, students who received universal SEL interventions demonstrated enhanced SEL skills, attitudes, positive social behaviors, and academic performance as well as fewer conduct problems and lower levels of emotional distress. Moreover, the research demonstrated intervention effects remained significant at the average 6-month follow-up (Durlak et al., 2011). These findings support the effectiveness and sustainability of using universal SEL interventions as part of a MTSS framework to improve student mental health and related outcomes in K-12 education settings. As of yet, however, there is seldom research on the effectiveness of using a universal SEL intervention to improve student mental health within the higher education setting (Reiter et al., 2019; Worsley et al., 2022).

MTSS in Higher Education

While MTSS has seldom been implemented in higher education settings, its demonstrated effectiveness in improving student mental health outcomes in the K-12 education setting

suggests it is a useful framework to be applied within higher education (Conley, 2015; Reiter, 2019). Furthermore, MTSS strongly aligns with recommendations from researchers examining the state of mental health care in higher education settings (Conley, 2015; Reiter, 2019; Worsley et al., 2022). Several researchers recommend higher education institutions apply preventive interventions, such as universal SEL interventions, to address the high rate of mental health needs of students and shortage of mental health services (Conley, 2015; Kay & Schwartz, 2010; Hartley, 2012; Reiter, 2019; Worsley et al., 2022).

A Course Curriculum as a Universal Mental Health Intervention

In order for MTSS to be effective in higher education settings, higher education institutions need to feasibly implement evidence-based, data-driven interventions that address the unique needs of college students (Brown-Chidsey & Bickford, 2016). Essential to this is selecting interventions that overcome some of the barriers that currently sustain the gap between the need for mental health services and lack of services available for college students. One way to provide mental health services to students that eliminates some of these barriers is through offering courses to students with curriculums designed to improve student mental health. This method is recommended by researchers examining mental health care in college settings (Hartley, 2012; Kay & Schwartz, 2010, Reiter, 2019; Worsley et al., 2022).

In *Mental Health Care in the College Community*, Kay and Schwartz (2010) overview the landscape of college student mental health services and provide evidence-based recommendations for higher education institutions to address the mental health needs of their students. A key recommendation from the researchers is to provide mental health intervention services directly through courses and campus-wide curriculums. Specifically, Kay and Schwartz (2010) recommend higher education institutions offer courses in mental wellbeing that focus on

building resilience through skills-oriented approaches that are associated with increased self-esteem, self-perception, self-confidence, self-leadership, and prosocial behaviors and decreased emotional distress, specifically depression, anxiety, and stress. They recommend these courses focus on theory and practice of skills, be required for all students, be required for incoming/new students to target prevention and promotion of wellbeing, and include booster sessions or on-going groups to maintain benefits and progress overtime. Consistent with Kay and Schwartz' (2010) recommendations, Hartley (2012) recommends higher education institutions use a preventive approach to address the shortage of mental health services for college students and overrun campus counseling centers by promoting student resilience and wellbeing through skill-based interventions and promoting social connectedness.

Overcoming Barriers to Accessing Mental Health Services

Providing college students with psychotherapy skills delivered via a college course alleviates the primary barriers students endorse as preventing them from accessing mental health services (Hartley, 2012; Kay & Schwartz, 2010, Reiter, 2019; Worsley et al., 2022). Specifically, delivering a mental health intervention through a college course helps minimize barriers including time, finances, stigma, resource limitations, and preference that often prevent students from accessing appropriate mental health treatment (Eisenberg et al., 2023). Therefore, implementing universal mental health interventions through college course curriculums is likely an equitable and viable solution to addressing the mental health needs of college students. In line with MTSS, universal mental health interventions delivered via college course curriculums must be culturally-responsive and data-driven (Brown-Chidsey & Bickford, 2016). Thus, interventions must address existing barriers that limit the effectiveness and equitability of existing mental health services.

Time. College students often reported not having enough time to seek and receive mental health treatment (Eisenberg et al., 2023). By providing students mental health support through a college course, students can fit mental health support into their academic schedule and earn course credit while spending time learning skills to support their mental health. By integrating mental health services into their course schedules, providing mental health intervention through college course curriculums can help alleviate time as a barrier to students accessing mental health support.

Financial Resources. College students also often report not having sufficient financial resources, such as not having enough money and/or health insurance, to cover mental health treatment (Eisenberg et al., 2023). By offering mental health support through a college course, students can use scholarship and financial aid they receive for tuition to pay for the course. Additionally, providing students mental health support through their college coursework eliminates any additional costs otherwise associated with outside mental health services. For example, students do not need to have health insurance to enroll in a college course. Thus, offering mental health support through this method helps alleviate the financial cost associated with outside mental health services and eliminates health insurance as a barrier to students accessing mental health support.

Offering mental health interventions through school-based services has been shown to increase the accessibility and use of mental health treatment for socioeconomically disadvantaged and uninsured youth in the K-12 education setting (Bains & Diallo, 2016; Langer et al., 2015; Stempel et al., 2019; Wade et al., 2008). For example, Langer et al. (2015) conducted a study examining demographic differences in youth mental health treatment utilization across school and clinic settings. The researchers found within school-based services,

there were no significant differences in youth receiving mental health services by race, insurance-status, and socioeconomic status whereas in clinic-based services discrepancies were found across these factors (Langer et al., 2015). Similarly, in Bains and Diallo's (2016) comprehensive review, the researchers found students insured through government programs (i.e., Medicaid or with no insurance) made up a higher percentage of users of mental health services in school-based mental health clinics (SBHCs), suggesting SBHCs may reduce access barriers to mental health services for socioeconomically disadvantaged children. In yet another study, Wade et al. (2008) examined SBHCs in elementary schools and longitudinal three-year outcomes for students. The researchers found SBHCs were shown to reduce mental health care inequities for low income and socioeconomically disadvantaged youth in the K-12 educational setting. The above data provide evidence to suggest offering mental health services through school-based services will increase the accessibility and equity of mental health services for socioeconomically disadvantaged individuals in the higher education setting.

Stigma. Stigma about needing and receiving mental health treatment was also identified as a barrier to students seeking mental health services, particularly for male-identifying students and students of color (Lipson et al., 2018; Lipson et al., 2019). Luckily, research on school-based mental health services delivered in the K-12 education system suggests offering mental health services on school campuses likely reduces stigma as a barrier to seeking and accessing mental health services, particularly for male-identifying students and students of color (Juszczak et al., 2008, Lipson et al., 2018). In a comparison of mental health service utilization at SBHCs versus community-based health clinics, Juszczak and colleagues (2008) found that male students were 45 times more likely to seek services in SBHCs than community clinics. The researchers also found that in urban areas, males made up a higher percentage of mental health visits at SBHCs

than females and were more likely to use SBHCs for mental health services over medical services. These findings indicate males are more likely to seek and access mental health services at school as compared to community clinics. This could suggest school-based mental health clinics are perceived as less-stigmatizing for males than community mental health services. While this research offers some support for school-based mental health services, more research is needed to determine if offering school-based services through a college course curriculum could effectively reduce stigma as a barrier to accessing mental health services, particularly in the higher education setting.

Staff Shortages and Clinic Resources. Providing an upstream mental health intervention to a large number of students helps alleviate resource burdens on other mental health services (Gallagher, 2009; Prince, 2015; Watkins et al., 2011; Xiao et al., 2017)). Gallagher (2009) reported the high demand for mental health services to college counseling centers forced counseling centers to prematurely end treatment services earlier than recommended and prioritize students with severe mental health needs. Additionally, many counseling centers are operating at or above capacity and experiencing staff shortages and burnout (Prince, 2015; Watkins et al., 2011; Xiao et al., 2017). Providing mental health services through a large-scale college course takes a preventive, resource-efficient approach to addressing the extensive mental health needs of college students. Providing a large portion of a university's student body with psychotherapy skills supports students with more mild mental health problems and helps prevent other students from their mental health problems worsening, thus reducing the number of students needing more intensive mental health services. This upstream approach helps alleviate the barrier of counseling center staff shortages and maximize institutional resources.

Preference. Another commonly endorsed reason why college students received fewer services for their mental health than otherwise was the preference to deal with their mental health issues on their own or with support from family members and/or friends (Eisenberg et al., 2023, Lipson et al., 2018). By allowing students to receive mental health support through a college course curriculum, it would allow students to implement skills taught on their own time in line with their reported preference for treatment. Furthermore, providing a large number of students with skills to improve mental health problems would facilitate more peer-to-peer mental health support using these effective evidence-based strategies. Lipson et al. (2018) found that students of color are even more likely than their white peers to turn to friends and family members for mental health support, indicating this is an effective strategy for improving access to mental health support for this population. Empowering a large number of college students with knowledge of evidence-based psychotherapy skills could have a cascading effect of positive mental health support for their peers and classmates.

Offering mental health support through a college course minimizes many of the aforementioned barriers that perpetuate the existing gap in mental health services available to college students (Bains & Diallo, 2016; Eisenberg et al., 2023; Langer et al., 2015; Stempel et al., 2019; Wade et al., 2008). Furthermore, providing mental health support to college students through a large-scale, universal intervention is resource-efficient and will help relieve an overburdened mental health care system (Kay & Schwartz, 2010; Hartley, 2012). Delivering evidence-based psychotherapy skills through a course curriculum is a data-driven approach aligned with best-practice and recommendations from researchers to improve college student mental health (Kay & Schwartz, 2010; Hartley, 2012).

A Universal Intervention to Improve Student Mental Health

In line with a MTSS framework and recommendations from researchers, the above research findings provide evidence to suggest delivering a universal mental health intervention through a college course curriculum is an effective, accessible, equitable, and sustainable solution to addressing the mental health needs of college students Brown-Chidsey & Bickford, 2016; Hartley, 2012; Kay & Schwartz, 2010, Reiter, 2019; Worsley et al., 2022). One such course curriculum, the *Wellness and Resilience for College and Beyond* (WRC), developed by Mazza and Lally (2017) aims to do just that. The WRC is a college course curriculum designed to be delivered at the universal level that targets improving undergraduate student mental health. The WRC teaches students skills from evidence-based psychotherapies and provides students with opportunities to practice the skills to improve student mental health.

A Data-Driven Approach to Targeting Contributing Factors

In addition to increasing the availability, accessibility, and usability of mental health services, the evidence-based psychotherapy skills and strategies taught within the WRC addresses many of the factors that contribute and elevate college students' risk for mental health problems (Mazza & Lally, 2017). In line with a MTSS framework, the WRC takes a systematic and data-driven approach to providing students with skills aimed to reduce risk factors and cultivate protective factors to improve overall student mental health. These skills and strategies are organized into frameworks to target complete student mental health.

The Dual-Factor Model of Mental Health. Mental health is more than just the absence of psychopathology (Suldo & Shaffer, 2008). Researchers, Suldo and Shaffer (2008) found individuals without psychopathology do not necessarily have positive mental health. Rather, complete mental health requires both low levels of psychopathology and the presence of

subjective wellbeing. That is, individuals must have both high subjective wellbeing and low levels of psychopathology to achieve complete mental health. Thus, in the context of the WRC, the intervention aims to reduce students' symptoms of psychopathology and increase students' subjective wellbeing to target complete student mental health (Mazza & Lally, 2017).

Adapt. Persevere. Thrive. Framework for Resiliency. The WRC teaches evidence-based psychotherapy skills associated with reducing levels and risk for psychopathology and increasing subjective wellbeing to target complete student mental health (Mazza & Lally, 2017). The WRC uses resiliency as the underlying framework for providing students skills to effectively manage symptoms of psychopathology and cultivate subjective wellbeing (Mazza & Lally, 2017). Resilience is defined by an individual's ability to successfully navigate and/or overcome challenges and thrive in spite of these challenges (DeCano, 2018). Thus, college students need skills for resilience in order to manage mental health problems and cultivate subjective wellbeing in spite of these challenges. In the WRC, evidence-based skills for resilience are taught through the Adapt. Persevere. Thrive. (APT) Framework (DeCano, 2018).

The APT Framework for resiliency is an evidence-based framework that outlines what individuals need in order to cultivate resilience (DeCano, 2018). The APT Framework includes the three keys individuals need for resilience and how individuals can cultivate these three keys. The three keys for resilience, as identified through research, are: a sense of purpose, healthy attachments and connections, and positive emotions. Individuals can cultivate these three keys through their reasoning, resources, and routines. Finally, the APT Framework outlines that it is necessary for individuals to have awareness of themselves, others, and their environment in order to successfully cultivate the keys for resilience (DeCano, 2018). The WRC organizes evidence-

based psychotherapy skills and strategies into the APT Framework to provide students with the information and skills needed to cultivate resilience (Mazza & Lally, 2017; see Figure 1).

APT Awareness of Self, Others, and the Environment. It is essential individuals have awareness of themselves, others, and their environment in order to effectively establish resources, reasoning, and routines that cultivate the three keys for resilience (DeCano, 2018). Mindfulness skills have been identified as effective both in and outside of college settings in improving individuals' understanding and awareness of themselves, others, and their environment (Vago & Silbersweig, 2012). The WRC teaches the mindfulness skills as taught in Dialectical Behavior Therapy (DBT; Linehan, 1993) to increase students' awareness of themselves, others, and their environment (Mazza & Lally, 2017).

APT Keys for Resilience. The WRC provides college students with information and skills for how to cultivate the three keys for resilience (DeCano, 2018; Mazza & Lally, 2017). The WRC provides students with the research-base that supports the importance of having a sense of purpose as part of resilience and students are asked to complete activities that allow them to cultivate a sense of purpose. For example, students are asked to complete a Values Clarification activity drawn from Dialectical Behavior Therapy (DBT) to identify their values and sense of purpose (Linehan, 1993). The WRC also provides students with the research-base that supports the importance of having healthy attachments and connections as a key element of resilience. The WRC provides students with the opportunity to practice skills that support establishing and maintaining relationships over time, such as the interpersonal effectiveness skills drawn from DBT (Linehan, 1993). Finally, the WRC teaches students the research behind the importance of experiencing positive emotions as a key element of resilience and evidence-

based psychotherapy skills students can use to cultivate positive emotions, such as gratitude (Wong et al., 2016).

APT Resources, Reasoning, and Routines. The WRC teaches a variety of skills drawn from evidence-based psychotherapies that students can use to cultivate the three keys for resilience (sense of purpose, healthy attachments & connections, experiencing positive emotions) through developing effective resources, reasoning, and routines, as according to the APT Framework (DeCano, 2018; Mazza & Lally, 2017). The WRC provides students with information on how to develop and implement routines that cultivate the three keys for resilience. For example, the WRC provides students with information on evidence-based habits that have been found to be associated with positive mental health and wellbeing (Walsh, 2012). Students are given the opportunity to identify how they can integrate these habits into their routine to cultivate resilience. Additionally, students are provided opportunities to reflect on resources they leverage to cultivate the three keys for resilience as well as taught skills for how to further cultivate resources for resilience (Mazza & Lally, 2017). For example, students are asked to identify their existing social connections they can use to support their resilience as well as skills for how to establish and maintain healthy connections with others. Finally, students are provided with information on how reasoning helps cultivate the three keys for resilience and given opportunities to practice engaging in reasoning. For example, each week, students are asked to connect to their core values and goals. Through the WRC, college students are provided information on how to build resources, reasoning, and routines that cultivate the three keys for resilience as well as given ample opportunity to practice the skills to do so (Mazza & Lally, 2016).

Addressing Risk Factors and Cultivating Protective Factors

The evidence-based skills and strategies for resilience, as aligned with the APT Framework, taught in the WRC are drawn from Dialectical Behavior Therapy (DBT, Linehan, 1993), Cognitive Behavioral Therapy (CBT, Beck, 1976), Acceptance and Commitment Therapy (ACT; Hayes et al., 2012), and Positive Psychology (Seligman & Csikszentmihalyi, 2000). The WRC provides college students information and skills that address many of the risk factors that contribute to elevated levels of psychopathology and help students cultivate subjective wellbeing. The skills and strategies taught in the WRC and how they address primary risk and protective factors for student mental health are outlined below.

Reducing Levels of Psychopathology. One way the WRC aims to improve college student mental health is through providing students with skills to reduce their levels of psychopathology (Mazza & Lally, 2017). As aforementioned, researchers have identified several factors that contribute to mental health problems and psychopathology, including reckless risk-taking, the inability to tolerate ambiguity, a thwarted sense of belonging and poor interpersonal relationships, identity confusion, and stress related to finances and academics (Eisenberg et al., 2023; Kessler et al., 2007; Kodish et al., 2022; Lipson et al., 2018; Soria & Horgos, 2021). Luckily, researchers have also identified various strategies that are effective in reducing and overcoming these risk factors and improving student mental health. Specifically, the WRC teaches evidence-based psychotherapy skills drawn from DBT, ACT, and CBT to reduce students' levels and risk for psychopathology.

Mindfulness. Researchers have identified various developmental risk factors that elevate a college student's risk for mental health problems (Kozlov, 2022; Pfeifer & Allen, 2020; Paus et al., 2008; Seera & Mateer, 2014). One of which includes distinct neurological developments that

occur for this age group. Research suggests some of these neurological changes include lack of cognitive processes critical for wellbeing, including self-monitoring, self-regulation, judgement, and problem-solving (Paus et al., 2008; Seera & Mateer, 2014). Supporting college students in developing these skills can help reduce risk factors for mental health problems and support healthy social and identity development for this age group (Conley, 2015; Kay & Schwartz, 2010; Worsley et al., 2022). Researchers have found implementing mindfulness interventions with college students has been associated with social and learning benefits, such as increased learning functions in the brain, including improved emotion regulation, learning and memory, self-referential processing, and perspective taking (Conley, 2015; Kay & Schwartz, 2010; Worsley et al., 2022). The researchers have also found mindfulness interventions were associated with decreases in college students' stress, depression, and anxiety and increases in wellbeing, compassion, and self-regulation. Moreover, mindfulness has been associated with physical health improvements in college students, such as better sleep and healthier eating habits, further supporting their overall wellbeing (Kay & Schwartz, 2010).

These findings suggest teaching college students mindfulness skills are an effective intervention to improve students' mental health through supporting students' self-regulation skills, skills for engaging in moderate risk-taking behaviors, skills for managing interpersonal stress and improving social relationships, and skills for reducing stress (Conley, 2015; Kay & Schwartz, 2010; Paus et al., 2008; Worsley et al., 2022). The WRC curriculum includes the teaching of mindfulness skills, as drawn from DBT, and provides students many opportunities to practice and implement the mindfulness skills (Mazza & Lally, 2017). Thus, the WRC targets these mental health risk factors through teaching college students mindfulness skills through the WRC curriculum.

Interpersonal Effectiveness. Researchers identified interpersonal problems, stress, and poor interpersonal relationships as key risk factors for mental health problems among college students (Dave et al., 2024; Karyotaki et al., 2020; Silvers & Peris, 2023). In addition to mindfulness skills having been found to improve interpersonal stress and relationships, the DBT interpersonal effectiveness skills also have been found to be effective in improving individuals' relationships (Linehan, 2015; Stepp et al., 2008). Research thereby suggests providing individuals with interpersonal effectiveness skills is effective in reducing interpersonal problems and stress and improving social development and connections with others, key protective factors for mental health among college students (Dave et al., 2024; Soria & Horgos, 2021). In line with this research, the WRC teaches students skills for interpersonal effectiveness to reduce interpersonal stress and thwarted belongingness as risk factors for poor mental health (Mazza & Lally, 2017).

Emotion Regulation and Distress Tolerance. The WRC teaches skills for managing stress, challenging situations, and difficult emotions (Mazza & Lally, 2017). Stress related to interpersonal relationships, academics, and finances have been associated with poor mental health and elevated risk for mental illness (Dave et al., 2024; Karyotaki et al., 2020; Soria & Horgos, 2021). The emotion regulation and distress tolerance skills drawn from DBT and ACT help individuals successfully navigate difficult situations and emotions (Linehan, 2015; Hayes et al., 2012). Thus, research suggests teaching college students emotion regulation and distress tolerance skills will help students manage stress that can otherwise contribute to poor mental health.

An additional way the WRC teaches students to manage stress is through an evidence-based skill drawn from CBT called cognitive restructuring (Mazza & Lally, 2017). Cognitive

restructuring helps students navigate challenging situations and emotions through replacing negative/unhelpful thoughts with positive/helpful thoughts (Beck, 1976). According to Cognitive Behavioral Theory, an individual's thoughts, feelings, and behaviors all influence one another (Beck, 1976). Thus, providing students with skills to manage unhelpful thoughts helps students regulate their emotions and behaviors.

Cultivating Protective Factors and Subjective Wellbeing. In addition to teaching students skills for reducing risk and levels of psychopathology, the WRC aims to improve student mental health by providing students with skills and strategies for improving and sustaining their subjective wellbeing (Mazza & Lally, 2017). The WRC includes skills and strategies drawn from Positive Psychology that research has shown are effective in improving subjective wellbeing (Mazza & Lally, 2017). The evidence-based skills and strategies taught in the WRC drawn from Positive Psychology to improve student subjective wellbeing include gratitude, paying attention to the positive, and therapeutic lifestyle changes (Seligman, 2000; Walsh, 2011; Wong et al., 2016).

The Effectiveness of the WRC in Improving College Student Mental Health

Since its' launch in 2017, the WRC has been successfully implemented for several years at the University of Washington, the University of Pittsburgh, and Wilkes University (Chugani et al., 2023; Reiter, 2019). Preliminary research revealed promising results on the effectiveness of the WRC in improving student mental health (Chugani et al., 2023; Kerrigan, 2024; Mitchell, 2024). Chugani et al. (2023) examined changes in college student mental health after completing the WRC as compared to students who did not complete the WRC. In this small quasi-experimental pilot study ($N = 21$), Chugani et al. (2023) found students who completed the WRC experienced significant improvements in their mental health, specifically on measures of

psychological flexibility, resilience, mindfulness, emotion dysregulation, distress tolerance, life satisfaction, and dysfunctional and adaptive coping. While Chugani et al.'s (2023) study revealed exciting findings supporting the effectiveness of the WRC in improving student mental health when delivered in a small-class format, it does not explore the effectiveness of WRC in improving student mental health when delivered in a large, universal format nor does it explain how the WRC impacts student mental health. Furthermore, due to the quasi-experimental nature of the study and small sample size, causal conclusions could not be inferred from the study's results (Chugani et al., 2023). In other words, the researchers were not able to assess why changes in student mental health occurred or how the WRC impacts student mental health.

Limited research has examined the effectiveness of the WRC in improving college student mental health when delivered as a large-scale universal intervention (Chugani et al., 2023; Reiter et al., 2019, Worsley et al., 2022). Preliminary analyses have revealed promising results. For example, multiple linear regression analyses showed significant decreases in student average scores on the Life Problems Inventory (LPI) after completing the WRC, indicating a decrease in students' symptoms of psychopathology and increase in DBT skill use (Kerrigan, 2024). Moreover, the data indicated that students with higher LPI scores at the beginning of the WRC showed significantly greater decreases in average LPI scores at the end of the WRC, indicating students with higher levels of psychopathology may experience even greater mental health improvements after completing the WRC. On the contrary, when examining student anxiety levels, preliminary analyses revealed students' anxiety, as measured by the Brief Symptoms Inventory (BSI) for anxiety, did not significantly decrease after completing the WRC (Mitchell, 2024). However, consistent with LPI change, students with higher average BSI anxiety scores at the beginning of the course showed greater decreases in BSI anxiety scores

after completing the WRC as compared to students with average or lower BSI anxiety scores at the beginning of the WRC. While promising, conclusions cannot be drawn on how the WRC impacts student mental health.

In addition to Chugani et al.'s (2023) small sample size, Chugani et al.'s (2023) sample of participants had very limited ethnic, racial, and socioeconomic diversity. Thus, their study does not provide insight into the WRC's effectiveness in improving mental health for a large and diverse body of students. Given that certain groups of college students and other student-level factors are associated with a disproportionately high risk for mental health problems, it is essential to ensure mental health interventions are meeting the needs of more vulnerable students (Dave et al., 2024; Eisenberg et al., 2023; Karyotaki et al., 2020).

Preliminary research has provided evidence in support of the WRC's effectiveness in improving student mental health (Chugani et al., 2023). However, researchers have yet to a) explore the effectiveness of the WRC in improving student mental health when delivered at a large, universal scale, b) examine the WRC's effectiveness in improving student mental health for diverse groups of undergraduate students and c) further understand the relationship between the WRC and student changes in mental health outcomes. The purpose of the present study is to address these research gaps.

Purpose of the Present Study

The purpose of the present study is to investigate the impact of the WRC on student mental health when delivered at a large, universal scale to a diverse body of undergraduate students. The present study aims to a) contribute to the literature on the effectiveness of improving student mental health through a universal, curriculum-based intervention, b) assess whether the WRC is an equitable and accessible mental health intervention for college students,

and c) understand how the WRC impacts student mental health. As such, in the present study I seek to answer the following research questions outlined below.

Quantitative Research Questions.

Research Question 1 (Q1). To what extent does student mental health change after completing the WRC?

It was hypothesized that students would experience a significant increase in student wellbeing and significant decrease in student psychopathology following the completion of the WRC. Chugani et al. (2023) found significant increases in students' psychological flexibility, resilience, mindfulness, emotion dysregulation, distress tolerance, life satisfaction, and dysfunctional and adaptive coping when examining student changes in mental health after completing the WRC within a smaller size. Furthermore, prior literature indicates tier-one school-based mental health interventions to be effective in improving mental health outcomes for K-12 students (Durlak et al., 2011; Sanchez et al., 2018) and as well as indicates the effectiveness of strategies included in the WRC content when implemented within clinical settings (Beck, 1976; Hayes et al., 2012; Linehan, 1993; Seligman & Csikszentmihalyi, 2000; Vago & Silbersweig, 2012; Walsh, 2012; Wong et al., 2016). Given the evidence-base of the strategies taught within the WRC and improvements in mental health outcomes after completing the WRC found by Chugani et al. (2023), it was hypothesized student mental health outcomes would improve after completing the WRC.

Research Question 2 (RQ2). To what extent do changes, if any, in student mental health after students complete the WRC differ by the class format in which students completed the course?

It was hypothesized changes in student mental health after completing the WRC would not differ by the format (virtual vs. in-person) in which students completed the course. Prior literature comparing in-person versus online student mental health treatment interventions delivered to college students demonstrated no significant differences in mental health outcomes after students completed the treatment intervention (Davies et al., 2014; Kodish et al., 2022). Given prior literature suggests online mental health treatment interventions to be comparable to in-person treatment intervention for college students, it was hypothesized the same would be true when comparing differences in student mental health outcomes across the virtual and in-person format of the WRC.

Research Question 3 (RQ3). To what extent do student-level sociodemographic factors predict changes in student mental health after completing the WRC?

It was hypothesized student-level sociodemographic factors would not significantly predict changes in student mental health after completing the WRC. Prior literature indicates several sociodemographic factors influence student risk for mental health problems including socioeconomic status, racial/ethnic status, gender, sexuality, ability status, first-generation status, transfer student status, and student residency (Auerbach et al., 2018; Duffy et al., 2019; Kodish et al., 2022; Lipson et al., 2019; Liu et al., 2019; Soria & Horgos, 2021). However, though minimal research has investigated the influence of student sociodemographic factors on treatment outcomes in college students, research examining this phenomenon in K-12 consistently demonstrates school-based mental health services reduce discrepancies otherwise found in clinical settings (Bains & Diallo, 2016; Langer et al., 2015; Sanchez et al., 2018; Stempel et al., 2019; Wade et al., 2008). Given prior literature suggests school-based mental health services have been shown to reduce discrepancies in student mental health outcomes in

the K-12 education setting, it is hypothesized the same would be true for college students within the context of the present study.

Qualitative Research Questions.

Research Question 4 (RQ4). How do students describe their experiences and perspectives completing the WRC?

Research Question 5 (RQ5). How do students describe their experiences and perspectives completing the WRC in a virtual or in-person class format?

Research Question 6 (RQ6). How do students describe how the WRC influenced their mental health?

Research Question 7 (RQ7). How do students perceive their identity shaped their experience in the WRC and their mental health?

Chapter 3: Methods

Research Design

A convergent mixed-methods design was employed to examine the impact of the WRC on undergraduate student wellbeing (Creswell & Plano Clark, 2018; see Figure 2). In a convergent mixed-methods design, quantitative data and qualitative data are collected concurrently and analyzed separately before merging to be further analyzed and interpreted (e.g., compared to validate findings and converge to better understand the research problem). A convergent mixed-methods research design is used to study a research problem in depth, use qualitative findings to illustrate quantitative findings, and use a set of findings from one strand (i.e., qualitative findings) to validate a set of findings from another strand (i.e., quantitative findings; Creswell & Plano Clark, 2018).

In this study, the purpose of using a convergent mixed-methods research design was to understand the research problem in-depth, validate the quantitative data with qualitative findings, and use qualitative findings to help illuminate the quantitative findings thereby allowing for understanding of how the relationship between the WRC and student mental health and how student- and course-level factors may influence this relationship. Quantitative data was used to assess changes in student mental health before and after completing the WRC as well as to assess differences in changes in wellbeing across quiz section clusters and various socio-demographic factors as described below. Qualitative data was collected to understand what factors contributed to student changes in mental health and why these changes did or did not occur for certain students. Congruent with a convergent mixed-methods research design, the qualitative and quantitative data sets were collected simultaneously and analyzed separately before being compared to one another to better understand the impact of the WRC on student mental health

for a large and diverse body of students (Creswell & Plano-Clark, 2018). The quantitative and qualitative results were merged during the interpretation phase of the study.

Epistemological, Ontological, and Theoretical Assumptions

As a researcher, I hold various epistemological and ontological assumptions that influenced the methodological approach to collecting and analyzing data within the context of this study (Creswell & Plano-Clark, 2018). Aligned with best practice within mixed-methods design, I assumed a pragmatic worldview (Creswell & Plano-Clark, 2018). Assuming a pragmatic worldview, my ontological (i.e., what we know), epistemological (i.e., how we know), and theoretical assumptions were guided not just by my beliefs, but also by the purpose, impact, and application of this research study (Creswell & Plano-Clark, 2018). As such, I endorsed the beliefs of ontological realism, epistemological pluralism, and various other theoretical orientations as described below.

Ontological Realism. Ontological realism is the belief that reality exists, but is not objectively knowable in a foundational way (McCrudden & Marchand, 2020). Ontological realism includes the question of whether there is an objective reality that exists separate from the meaning individuals ascribe or attach to that reality. It assumes it is possible to have multiple, valid understanding and interpretations about a phenomenon. Ontological realism is a process-focused orientation in that it is not concerned with capturing true reality, but is rather concerned with explicitly connecting meaning across the levels of the structure (McCrudden & Marchand, 2020). Ontological realism is applicable to this study in its' aim to understand both group-patterns and unique individual experiences of the WRC students who are situated within various social, cultural, and structural contexts.

Epistemological Pluralism. Within the context of this study, I endorsed epistemological pluralism, which is the belief that researchers can use multiple epistemological orientations within a single study (Creswell & Plano-Clark, 2018; McCrudden & Marchand, 2020). Epistemological pluralism allows the researcher to hold the dissonance or disharmony between findings from different methods within a mixed-methods study. In this study, both post-positivists and constructivists perspectives were assumed as I believe there are realities that can be measured objectively and that these realities exist within a specific time, setting, and context and may vary by individual. Using epistemological pluralism, I can seek to both objectively and subjectively analyze quantitative and qualitative data, respectively, justifying the use of a mixed-methods research design (Creswell & Plano-Clark, 2018; McCrudden & Marchand, 2020).

Theoretical Orientation. Finally, within the context of this study, I adopted intersectionality theory (Patton et al., 2016) and Bronfenbrenner's Ecological Systems Theory (1979) as theoretical orientations that informed the present study. An intersectionality framework assumes that all people have multiple, intersecting identities that influence and constitute one another and as a result, individuals experience a paradox of simultaneous privilege and marginalization (Patton et al., 2016). Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979) assumes that individuals do not exist within a vacuum, rather individuals exist within multiple environmental contexts that interact within one another across time. Under intersectionality and Bronfenbrenner's Ecological Systems theories, an individual may respond or experience an intervention differently depending on the intersecting identities they hold within multiple environmental, cultural, and societal constructs (Bronfenbrenner, 1979; Patton et al., 2016). This theoretical orientation was applicable within the context of this study as it allowed me to recognize how the various structures and contexts within which the WRC students are

situated may differentially impact various individual students depending on their identities, also further justifying the use of both multi-level modeling and semantic qualitative analysis to answer the research questions.

Setting

The *Wellness and Resilience for College and Beyond* course (WRC; Mazza & Lally, 2017) was implemented at a large, public university in the Northwest region of the United States. Any undergraduate student enrolled at the university was eligible to enroll in the WRC. The WRC was advertised through the university's course catalog and additional information about the course was available on several of the university's blogs and department websites. The WRC fulfills general education social science credit requirements for undergraduate students, "writing" credits required by the university, and credits towards an education studies major and minor.

Implementation and Materials

The WRC was delivered over a 10-week academic quarter in Fall of 2025. The WRC was offered in two formats: virtual and in-person. The WRC course lectures were delivered by three professors holding doctoral degrees in school psychology (two professors supporting the in-person format and one professor supporting the virtual format). All professors have several years of experience teaching at the college level. Four teaching assistants led and facilitated the weekly quiz sections. Two of the teaching assistants hold Education Specialists degrees and two were in the process of earning an Education Specialist degree. In addition to the professors and teaching assistants, several masters-level graduate students in the school psychology program supported implementation by providing weekly scoring and feedback on homework assignments submitted by participants enrolled in the WRC. The WRC teaching team (professors, teaching assistants, and reader-graders) met for 1 hour once weekly to ensure implementation fidelity.

Materials

The in-person WRC was delivered in a large lecture hall at the university campus. A large projector screen with speakers was used to deliver the weekly content via Microsoft PowerPoint. Weekly quiz sections were held in university classrooms assigned by the university where students were seated at tables in small groups throughout the classroom. During each quiz section, instructions were provided via a projector on Microsoft PowerPoint and individual and group worksheets were completed via paper and pencil. All other WRC assignments were assigned and collected online via the university's Canvas page.

The virtual WRC lecture and quiz sections were held via Zoom and the content was delivered via Microsoft PowerPoint slides. During each quiz section, breakout rooms were utilized to create small groups of students. Individual and group worksheets were completed using Google Drive. All WRC materials were stored on a shared drive with the teaching team. WRC assignments were assigned and collected online via the university's Canvas page.

Participants

Recruitment Procedures

Participants were recruited from students enrolled in the WRC during the Fall 2025 academic quarter from both the virtual and in-person sections of the WRC. Undergraduate students were recruited to enroll in the WRC through the university's course catalog and university advertisements. Students had the opportunity to enroll in either the in-person or virtual section of the WRC. The in-person section of the WRC had an enrollment capacity of 300 students and the virtual section of the WRC had an enrollment capacity of 180 students. After enrolling in either the virtual or in-person WRC, students self-selected into quiz sections held at

various times throughout a single weekday. Notably, three of the quiz sections were delivered in a virtual/online format and seven were delivered in an in-person lecture format.

Once students enrolled in the WRC for the Fall 2025 academic quarter, all students enrolled in the WRC were invited via their university-affiliated email to participate in this study and complete the Wellness and Resilience survey. The Wellness and Resilience survey is an online questionnaire including informed consent, various measures of wellbeing, and demographic information. All students were invited to participate in the Wellness and Resilience Survey once at the beginning of the academic quarter and once at the end of the academic quarter. Participants received extra credit for completing each survey. Prior to completing the survey, students completed informed consent to participate in this study.

In addition to being invited to complete the Wellness and Resilience surveys, students enrolled in the WRC during the Fall 2025 quarter were invited during the first two weeks of the quarter and once during the last week of the quarter to participate in an interview at the end of the quarter about their experience completing the WRC. Prior to participating in an interview, participants completed informed consent both written and verbally. Because students were asked about their mental health during student interviews, this study included a risk management protocol and participants were informed of confidentiality limits via written and verbal communication as part of informed consent. This study was approved by the University of Washington's Institutional Review Board (IRB protocol number: STUDY00007274 and MOD00023362) prior to implementation.

Quantitative Strand

Sampling Procedures

All 447 undergraduate students enrolled across the two course formats and all 10 quiz sections of the WRC (virtual format ($n = 172$) and in-person lecture format ($n = 275$)) during the Fall 2025 academic quarter were invited via their university-affiliated email to participate in the survey and interview portions of the study. For the 294 students who elected to complete the pre-course questionnaire and the 338 students elected to complete the post-course questionnaire, $N = 221$ ultimately completed both pretest and posttest questionnaires (representing a 49% participation rate, with $n = 86$ from virtual sections and $n = 135$ from in-person sections).

Demographic data for the students who completed the questionnaires is presented in Table 2.

The demographic makeup of the final sample of $N = 221$ students was compared to the Fall 2025 demographic makeup of the university's broader undergraduate population as reported by the University of Washington's Office of Planning & Budgeting (2025-2026). Regarding racial/ethnic makeup, as can be seen, most students (56%) identified as Asian or Southeast Asian, which is a higher proportion as compared to the broader university compositions reported as 23%. 18% of the sample identified as White or Caucasian, which is proportionally less as compared to the broader university composition reported as 33%. Approximately 15% of the sample identified as mixed-race, more than one race, or other race, which is similar to that of the university composition reported as 14%. Of this study's sample, 6% identified as Hispanic/Latino/a, or Spanish Origin which is disproportionately less than the university composition of 10%. The proportion of students who identified as Black or African American (4%) was similar to the university composition of 5%. Additionally, the percentage of students who identified as American Indian/Alaska Native (<1%) was also similar to the university composition of <1%. The university statistics included different racial/ethnic categories than those used in this study. For example, the university indicated 12% of their undergraduate

population identifies as ‘International,’ a racial/ethnic category not included in this study. Notably, there was a high proportion of students in this study that identified as both Asian or Southeast Asian and as an international student, which could account for some of the discrepancy between the sample and broader university population.

Regarding resident status, this study’s sample had a much higher proportion of international (54%) and non-resident (21%) students as compared to the university’s population of 9% international students and 16% non-resident students. Regarding the proportion of transfer students, this study’s sample had a much lower proportion of transfer students (8%) as compared to the broader university population (16%). Regarding funding status, 44% of respondents indicated they receive some sort of financial aid whereas approximately 57% of the university’s total undergraduate population receives some sort of financial aid. Regarding first-generation students, this study had a slightly higher percentage of first-generation students (34%) as compared to the broader university’s population (28%). The university did not report the gender makeup of their population. Taken together, this study’s sample is somewhat representative of the university’s broader undergraduate population with a higher proportion of international and non-resident students, Asian or Southeast Asian students, and first-generation students and a lower proportion of White or Caucasian students, Hispanic or Latino/a students, transfer students, and self-funded students (University of Washington’s Office of Planning & Budgeting, 2025-2026).

Data Collection

Surveys were administered via online questionnaires during the first week of the Fall 2025 academic term (pre-course) and again at the end of the final week of the Fall 2025 academic term (post-course), with 2-week windows to complete each. At pretest, questionnaires

included informed consent and student demographic information as well as the focal mental health measures used in this study. At posttest, only mental health measures were included.

Predictor variables examined as part of the surveys included participants' mental health at the start of the WRC, the quiz section in which the student enrolled in, the number of WRC lectures and quiz sections attended, students' funding source for paying tuition, student racial/ethnic identity, student first-generation status, student transfer student status, student gender identity, student campus living status, and student resident status. Measure descriptions are as follows:

Outcome Variables. Two dependent variables were used in this study to assess changes in students' mental health in line with the Dual Factor Model: psychopathology and subjective wellbeing (Suldo & Shaffer, 2008). *Subjective wellbeing* was measured using the Students' Life Satisfaction Scale (SLSS; Huebner, 1991) and *psychopathology* was measured using the Brief Symptoms Inventory-18 (BSI-18; Derogatis, 2000). Internal consistency reliability was evaluated for the SLSS and BSI-18 at the beginning (pre-course) and end (post-course) of the WRC for their use within this study. The SLSS demonstrated acceptable reliability at pre-course ($\alpha = .73$) and good reliability post-course ($\alpha = .81$). The BSI-18 demonstrated excellent reliability at pre-course ($\alpha = .93$) and post-course ($\alpha = .94$).

Students' *subjective wellbeing* was measured using the SLSS. The SLSS is a seven-item self-report scale used to measure an individual's overall evaluation with the positivity of their life (Huebner, 2000). In other words, the SLSS measures an individual's overall satisfaction with their life. Each item on the SLSS is rated on a 1 to 6-point Likert scale (from '1' = 'Strongly Disagree' to '6' = 'Strongly Agree'). Item scores are averaged (with items 3 and 4 reverse scored) with total scores ranging from 1 to 6 with higher scores indicating higher life

satisfaction. In one study, the SLSS was administered to 1,188 adolescents and the mean SLSS score was 4.21 with standard deviation of 1.14 (Huebner, et al., 2004). Additionally, the researchers used this sample to identify an SLSS cut point of 4.0, with scores between 1 and 3.9 indicating low life satisfaction and scores above 4.0 indicating high life satisfaction. Since its initial development, previous reports on the SLSS have found good internal consistency (alpha coefficients ranging 0.74 to 0.90), test-retest reliability, factor structure (item total correlation coefficients ranging from .65-.73) as well as good discriminant validity, construct validity, and predictive validity with various other measures of wellbeing and life satisfaction (Huebner et al., 2004). Additionally, the SLSS has demonstrated invariance across race and gender (Huebner et al., 2004; Jiang & Huebner, 2017).

The BSI-18 is an 18-item self-report scale used to measure psychiatric distress (Derogatis, 2000). Each item on the BSI-18 is rated on a 0 to 4-point rating scale (from '0' = 'Not at all' to '4' = 'Extremely'). Items are summed into a Global Severity Index (GSI). The BSI-18 has been evaluated on its use with various populations and research suggests the use of clinical cut-off scores of approximately 12 for the GSI, 4 for somatization, 4 for depression, and 5 for anxiety in the general collegiate population (Franke et al., 2017; Iza-Fernández et al., 2025; Lancaster et al., 2016). The BSI-18 has demonstrated good internal consistency (alpha coefficients ranging from .74 - .89), test-retest reliability (ranging from .68 - .90), and construct validity (coefficients ranging from .91 - .96) for its use with non-clinical samples (Boothroyd, 2003).

Predictor Variables. Predictor variables included both course-related as well as students' sociodemographic-related factors. Predictors related to the class itself (**course-related factors**) included course *delivery format*, course dosage via *class lecture* and *quiz section*

absenteeism. While quiz section itself was treated as a random effect (recalling that there were 10 quiz sections students were enrolled prior to the start of the class), course delivery format (1 = virtual, 0 = in-person) was treated as a fixed-effect predictor (there were seven in-person and three virtual quiz sections; since there were more in-person sections the virtual sections were coded with a 1 for ease of analysis estimation and results interpretation). More importantly, whether students were absent from any of the WRC lecture sessions (lecture absence) as well as whether they were absent from any of their quiz section sessions (quiz section absence) were also included as key predictor variables serving as proxies for course disengagement or “dosage.” Since most students attended all lectures and all quiz sections, both variables were dichotomized (1 = missed any session, 0 = otherwise).

Student Sociodemographic-Related Factors. First, to statistically control for the additional measurement error that can occur in pre-post change score variables beyond the posttest score (and thereby boosting statistical power), *pre-course levels* of each of the two respective outcomes were included. As well, since earlier literature has revealed associations among sociodemographic factors and college students’ risk for mental health problems (Dave et al., 2024; Karyotaki et al., 2020), student sociodemographic characteristics were included to the extent possible.

Second, because this study’s sample disproportionately self-identified as Asian/Asian American (which is also a reflection in the university’s race/ethnicity composition), and because racial/ethnic disparities were not a focus of the study, race/ethnicity is reported descriptively and was not included as a predictor in the models. Factors that were specified as predictors in the statistical models included: whether students lived on or off campus (*campus living status*, with 1 = yes, 0 = otherwise); whether or not students had transferred into the university or had

matriculated as a freshman (*transfer status*, with 1 = yes, 0 = otherwise); whether or not students were the first generation in their immediate family to go to college (*first-generation status*, with 1 = yes, 0 = otherwise); and whether students self-identified as female or otherwise (*female status*, with 1 = yes, 0 = otherwise).

Quantitative Data Analysis

Preliminary Data Examination. The data was preliminary examined to determine correlation among predictor and outcome variables. Preliminary examination of the data revealed that student race/ethnicity, international student status, and funding status (scholarship/aid vs. private) were more correlated with each other than either of the outcome variables. Additionally, while of interest, these were not the focus of this study and were therefore not included as factors in the models.

Modeling. Multilevel regression analysis using the *R* lme4 package (Bates et al., 2015) was used to test the quantitative research questions. To obtain Satterthwaite degrees of freedom, the lmerTest package was also employed (Kuznetsova et al., 2017). A multilevel analysis approach offered two advantages over other modeling choices: first, the use of random, rather than fixed, effects for clustering variables allowed for decomposition of lower-level effects into separate variance components between and within quiz sections (Snijders & Bosker, 2012). Second, it enabled the quiz-section format predictor to be tested with the correct degrees of freedom at Level 2 (Snijders & Bosker, 2012).

For ease of results interpretation, all categorical predictors (course delivery format, lecture absence, quiz section absence, campus living status, transfer status, first-generation status, and female status) were effect-coded, and all continuous predictors (pre-course student wellbeing and psychopathology) were standardized into *z*-scores. As well, all student-level

predictors were cluster-mean centered within quiz sections, according to multilevel modeling best practices (e.g., Sanders & Konold, 2023; Yaremych et al., 2023).

A series of three models were specified, with students nested within quiz sections, for each of the two dependent variables. First, the degree of non-independence among students' scores within quiz sections using random intercept-only models was assessed for each of the two change score outcomes. Next, a model with predictor main effects only was specified, before comparing the use of fixed-only vs. fixed+random slopes to determine the best structure for the data using AIC and BIC fit indices and the chi-square likelihood ratio test. Those comparisons revealed that treating slopes as fixed-only fit the data as well as the more complex fixed+random slopes models, so the fixed-only slopes model was retained as Model 1. Last, a model that included all 2-way interactions among the eight predictors was specified to determine whether there were any moderator effects present among the predictors. Model 1 is shown below.

$$\begin{aligned}
 &PrePost\ Change_{ij} \\
 &= \gamma_{00} + \gamma_{10}ZPre_{ij} + \gamma_{01}VirtualClassFormat_j + \gamma_{20}AnyLectureAbs_{ij} \\
 &+ \gamma_{30}AnyQuizAbs_{ij} + \gamma_{40}LiveOnCampus_{ij} + \gamma_{50}Transfer_{ij} \\
 &+ \gamma_{60}FirstGen_{ij} + \gamma_{70}Female_{ij} + U_{0j} + R_{ij}
 \end{aligned}$$

In the model above, the i^{th} change score for students in the j^{th} quiz section is a function of the sum of the conditional mean (γ_{00}), standardized pre-course level effect (γ_{10}), virtual class delivery format effect (γ_{01}), any class lecture absence effect (γ_{20}), any class quiz section absence effect (γ_{30}), on-campus living effect (γ_{40}), transfer degree effect (γ_{50}), first-generation college effect (γ_{60}), and female effect (γ_{70}) effect, along with the residual deviation of being in the j^{th} quiz section from the grand mean (U_{0j}), and the residual error for students within quiz sections (R_{ij}).

An alpha of .05, 2-tailed, was used for all coefficient tests, and approximate model total R^2 values were obtained using the 'r2mlm' *R* package (Rights & Sterba, 2019; Shaw et al., 2020). Data visualization of model-predicted values was implemented using the 'ggplot2' *R* package (Wickham, 2016) with interaction term predicted values extracted with the 'effects' *R* package (Fox & Weisberg, 2019).

Qualitative Strand

Qualitative data was also collected using semi-structure interviews for the purpose of understanding the impact of the WRC on undergraduate student mental health as well as how student identity factors influenced this relationship (i.e., to better understand the relationship between the WRC and student mental health). A case study was employed as the study is contextually bounded within the context of the WRC delivered at the University of Washington, a large public university in Washington State. Congruent with a convergent mixed-methods design, participant sampling and data collection procedures for the qualitative strand of the study were conducted independently from the sampling and data collection procedures for the quantitative strand of the study (Creswell & Plano-Clark, 2018). After both the qualitative and remaining quantitative data were collected separately, the qualitative and quantitative data were analyzed separately before they were merged during interpretation. During the interpretation phase of the study, the quantitative and qualitative data were compared and contrasted against one another to validate the findings and the qualitative data were used to help illustrate the quantitative findings and better understand the relationship between the WRC and student mental health.

Sampling Procedures

All students enrolled in the Wellness and Resilience course during the Fall 2025 quarter were invited to participate in the qualitative strand of this study. Students enrolled in the Wellness and Resilience course during the Fall 2025 quarter were invited via their university-affiliated email to participate in an interview regarding their experiences and perspectives completing the Wellness and Resilience course. The recruitment email was sent to students once during the second week of the academic quarter after the add/drop registration period closed and once during the last week of the quarter.

Once students volunteered to participate in an interview, purposeful sampling was used to select a final sample of participants to be interviewed and participate in the qualitative strand of this study. Purposeful sampling is when the researcher recruits select individuals to participate in the qualitative portion of the study who can have experienced the central phenomenon and/or key concepts being examined within the study (Creswell & Plano Clark, 2018). More specifically, maximal variation sampling was used to the extent possible to select students to participate who had membership to a group of interest related to the central phenomenon. For example, after the first round of purposeful sampling was completed, a second recruitment email was sent during the last week of the quarter to recruit participants who completed the WRC in the virtual format to promote maximal variation sampling as no students who completed the course in the virtual format volunteered to participate in an interview after the first recruitment email was sent. The final sample of participants in the qualitative strand was not intended to represent of the total sample of participants in the quantitative strand nor are the participants in the qualitative strand representative of subgroups of students and/or larger communities. Rather, participants were selected to participate in the qualitative strand of this study to provide in-depth insight into participants' experiences and perspectives completing the WRC as well as the relationship

between the WRC and student mental health (Creswell & Plano-Clark, 2018). This is consistent with qualitative case study research as Denzin and Lincoln (2005) note on sampling selection procedures, “the choice is made, ensuring variety but not necessarily representativeness’s, without strong argument for typicality, again weighted by considerations of access...” (p.452). A final sample of $N = 8$ participants completed in the interview, one of whom completed the WRC virtually and seven of whom completed the course in person. Demographic information for the participants included in the qualitative portion of this study is included in Table 7.

Qualitative Data Collection

Once students consented to participate in the qualitative portion of the study, participants were invited to complete a semi-structured interview regarding their experience completing the WRC. The use of semi-structured interviews to collect data is appropriate for deductive and inductive analysis within the context of a mixed-methods research study. Since qualitative data are used to both illustrate and explain the quantitative data as well as understand students’ experiences and perspectives completing the WRC, semi-structured interview procedures allowed for both deductive analysis, that captures “precise data of codable nature so as to explain behavior within preestablished categories,” as well as inductive analysis, which is used to “understand the complex behaviors of members of society without imposing any a priori categorization that may limit the field of inquiry” (Denzin & Lincoln, 2005, p. 706).

The interview included informed consent, including rights to privacy and protection from harm, initial questions aimed to establish trust and rapport between the interviewer and participants, and guiding questions related to participants’ experiences and perspectives completing the WRC, their mental health, their identity and other related lived experiences. The guiding interview questions were tested for validity and reliability using pilot interviews with

students completed the WRC prior to the Fall 2025 quarter. Pilot interviews using the guiding interview questions provided in-depth insights into student perspectives and experiences completing the WRC and thus thought to be a reliable and valid data collection tool to address the purpose of this study. See Appendix B for the list of guiding interview questions.

Interviews were conducted during the last two weeks of the Fall 2025 academic quarter and within the two weeks following the end of the quarter after students have completed, at minimum, the nine weeks' worth of new material in the WRC (the last two weeks of the WRC curriculum include review content and the comprehensive exam). Interviews were conducted within a few weeks of the end of the WRC to minimize participant recall bias. Participant interviews were conducted, transcribed, and stored using the university's HIPAA compliant Zoom platform to protect participant confidentiality. Once transcribed, participant interview responses were de-identified to further protect participant confidentiality and exported into Dedoose (Version 9.0; SocioCultural Research Consultants, LLC, 2022), a qualitative analysis software platform in preparation for analysis. All participants who participated in an interview were compensated with a \$50 Visa gift voucher for their time.

Qualitative Data Analysis

Qualitative data analysis began during the data collection process. Throughout the interview, participants' responses were interpreted for meaning, reflected back to them to check for validity of the constructions. Additionally, member checks were completed at the end of each interview by summarizing the major points and constructions made to promote validity of the constructions. Participants were invited to refute, correct, or verify the constructions at each member check.

Next, qualitative data were coded into themes using semantic analysis. Semantic analysis in qualitative educational research focuses on understanding the meaning, context, and relationships between words, phrases, or concepts within textual data (Creswell & Poth, 2018). In this study, the semantic analysis was used to understand the relationship between the WRC and student mental health and how student-level factors impact this relationship as well as to help further understand the quantitative results of the study. This approach is suitable for exploring individual perspectives and dynamics within educational settings, as it allows researchers to systematically capture the complexity of participants' lived experiences and identify patterns in textual data (Creswell & Poth, 2018). Therefore, to address the purpose of this study and answer the research questions, a semantic analysis was employed to explore participants' experiences and perspectives completing the WRC, the relationship between the WRC and student mental health, and how student-level factors influenced this relationship.

Qualitative data analysis procedures were used to address the qualitative research questions. To gain a deeper understanding of the relationship between the WRC and student mental health (both psychopathology and subjective wellbeing) as well as how student-level factors may influence this relationship, participants' responses were grouped into semantic fields including both pre-determined themes and emerging themes using constant comparison analysis. In this way, both inductive and deductive semantic categories were used. Deductive semantic analysis allowed for the identification of themes based on preexisting theories, constructs, and background literature to answer the research questions rooted in such theories, while inductive semantic analysis allowed for unexpected meanings or themes brought up by participants to be uncovered (Creswell & Poth, 2018). Using both deductive and inductive semantic analysis

provided the opportunity to confirm theoretical expectations match the lived experiences participants describe. A priori and emergent themes are listed in Table 6.

After recurring semantic patterns were synthesized into semantic themes, Dedoose (SocioCultural Research Consultants, LLC, 2022) coding software was used for cross-coding reliability. Specifically, Dedoose's auto-coding software configured excerpts from participant data into new and existing themes otherwise not identified by the primary researcher (SocioCultural Research Consultants, LLC, 2022). The excerpts and themes newly identified by the auto-coding software were assessed for relevance to the research questions and reliability of the software. In alignment with constant comparison analysis procedures, qualitative analyses ended when saturation of categories was achieved (Lincoln & Guba, 1985).

Data Merging and Interpretation

Congruent with a convergent mixed-methods research design, results from the quantitative and qualitative data sets were combined during a merged interpretation after the separate analyses of the qualitative and quantitative strands (Creswell & Plano-Clark, 2018). Quantitative and qualitative data were analyzed separately and merging occurred by comparing and contrasting the qualitative and quantitative results and using the qualitative results to help illustrate the quantitative results. Quantitative and qualitative results are presented via a narrative discussion and statistics-by-theme joint display (see Table 8) in the **Results** section below.

Chapter 4: Results

Quantitative Results

Descriptive Statistics

Means, standard deviations, and zero-order correlations among all variables used in the multilevel models are given in Table 3. Student subjective wellbeing, as measured by the Student Life Satisfaction Scale (SLSS), score at the beginning of the Wellness and Resilience Course (WRC) averaged 4.19 points and by the end of the WRC averaged 4.25 points, representing a small mean gain of 0.06 points. The average student psychopathology, as measured by the Brief Symptoms Inventory (BSI-18), score at the beginning of the WRC was 0.93 points and by the end was 0.91 points, representing a small mean decrease of 0.02 points. Intercept-only models revealed that quiz section (recall that there were 10 quiz sections) accounted for approximately 1% of the variance in SLSS change and 2% of the variance in BSI-18 change.

The correlations show that pre-course levels of subjective wellbeing and psychopathology were highly correlated with changes in their respective dependent variables ($r = -.22$ and $r = -.45$, respectively; $p < .001$). As was also expected, student psychopathology and life satisfaction were negatively correlated with one another ($r = -.31$, $p < .001$). More interestingly, change in wellbeing was significantly negatively related to any lecture absence ($r = -.13$, $p = .047$), with a trend for a negative relation with first-generation college status ($r = -.10$, $p = .133$). Change in psychopathology was significantly negatively related to living on campus ($r = -.15$, $p = .030$), with trends for relations with any quiz section absence ($r = .10$, $p = .159$) and female status ($r = -.13$, $p = .059$).

Multilevel Linear Regression Results

Intercept-Only Model. Intercept-only model results show that the intraclass correlations (ICCs) were $<.01$ for both dependent variables. This indicates that there was little variation in students' change scores across quiz section groups. Nevertheless, multilevel modeling was still retained for the remaining analyses in order to accurately test the virtual vs. in-person course delivery format appropriately at the quiz section level.

Model 1 vs. Model 2. Recall that Model 1 evaluated the set of main effects with eight predictors, and Model 2 added all 2-way interactions among the predictors. When the models were compared, results showed that Model 2 fit significantly better than Model 1, $\chi^2(28, N = 221) = 41.64, p = .047$ for subjective wellbeing, but for psychopathology, there was no significant difference, $\chi^2(28, N = 221) = 34.46, p = .186$. Evaluation of the fixed effects R^2 values indicated that, for subjective wellbeing, 9.27% of the variance in change scores was explained by the set of main effects (Model 1), whereas 24.73% was explained by the main effects and interactions combined (Model 2). For psychopathology, the fixed-effects total R^2 values were 23.51% for Model 1 and 34.14% for Model 2. Given the improved R^2 from Model 1 to Model 2 for both outcomes and that Model 2 fit significantly better than Model 1 for one of the outcomes, Model 2 was retained for final model results for interpretation.

Subjective Wellbeing Model 2 Results. Table 4 reports all fixed effects coefficient results for wellbeing Model 1 and Model 2 and Figures 3 – 6 display model-predicted subjective wellbeing change across patterns of pretest and lecture and quiz absence effects for campus living status, transfer status, first-generation status, and female status. Focusing on Model 2, the intercept coefficient showed a trend for a significant mean pre-post WRC course increase in subjective wellbeing of 0.09 points ($p < .10$). Additionally, there were notable significant effects on change, including pre-course wellbeing, any lecture absence, and first-generation college

status, along with five interactions. There were no significant differences in predicted subjective wellbeing across quiz sections or course format.

Pre-course Subjective Wellbeing Effects. Regarding the pre-course subjective wellbeing effect, the coefficient indicated that students who started the course one standard deviation above average were predicted to have 0.14 lower gains than the average gain of 0.09 points, and vice versa. This is common in that students who start out with higher scores have less room for growth. Perhaps more interestingly, there were interactions between pre-course subjective wellbeing and transfer status as well as female status.

Transfer students who started out with +1SD higher subjective wellbeing were predicted to increase by 0.12 points (calculated from $0.09 + (-0.14) + (-0.01) + (+0.18)$) from pre- to post-WRC course, whereas non-transfer peers with +1SD pre-course subjective wellbeing were predicted to decrease by 0.22 points (calculated from $0.09 + (-0.14) + (+0.01) + (-0.18)$).

Transfer students who started out lower, on the other hand, were predicted to increase by much less, only 0.04 points (calculated from $0.09 + (+0.14) + (-0.01) + (-0.18)$) from pre- to post-WRC course, compared with non-transfer peers with -1SD pretest wellbeing who were predicted to increase by 0.42 points (calculated from $0.09 + (+0.14) + (+0.01) + (+0.18)$). (See also Figure 4, which further breaks down the effect differences by absenteeism.) In short, **non-transfer students with lower initial subjective wellbeing and transfer students with higher initial subjective wellbeing had the most positive subjective wellbeing gains.**

With respect to the pretest-by-female interaction on subjective wellbeing, the Model 2 coefficient results indicated that female students who started out with +1SD higher subjective wellbeing were predicted to decrease their subjective wellbeing from pre- to post-course by 0.13 points (calculated from $0.09 + (-0.14) + (+0.03) + (-0.11)$); comparatively, female students who

started out $-1SD$ lower were predicted to increase by 0.37 points (calculated from $0.09 + (+0.14) + (+0.03) + (+0.11)$). Non-female peers who started out $+1SD$ higher on pre-course subjective wellbeing were predicted to increase very slightly by 0.03 points (calculated from $0.09 + (-0.14) + (-0.03) + (+0.11)$), whereas those who started out with $-1SD$ pretest subjective wellbeing who were predicted to increase by 0.09 points (calculated from $0.09 + (+0.14) + (-0.03) + (-0.11)$). In sum, **female students with lower initial subjective wellbeing gained much more subjective wellbeing than non-female peers**, but the same was not true for students who started out with higher wellbeing (see also Figure 6, which further breaks down the effect differences by absenteeism).

Lecture Absence Effects on Wellbeing. Students who were absent from one or more of their class lectures had significantly lower gains in subjective wellbeing than average (essentially no gains: $0.09 - 0.10 = -0.01$ -point change from pre- to post-course, all else held constant). This result is qualified, however, by significant interactions between lecture absence status and living on campus, transfer, and female status. With respect to where students live: the benefit of having perfect class attendance was linked to **greater pre-post subjective wellbeing gains for students who lived off campus** (predicted gain of 0.31 points) compared with those who lived on campus (predicted gain of 0.08 points). Conversely, less-than-perfect class lecture attendance was linked with a predicted decline of 0.09 points in wellbeing for students living off campus compared with those living on campus (who were predicted to increase by 0.07 points).

Model results showed a significant interaction between lecture attendance and student transfer status. With respect to transfer student status: the benefit of having perfect class attendance was linked to **greater pre-post subjective wellbeing gains for students who were transfer students** (predicted gain of 0.38 points) compared with those who were not transfer

students (negligible predicted gain of 0.01 points). Conversely, less-than-perfect class lecture attendance was linked with a predicted decline of 0.22 points in wellbeing for transfer students compared to non-transfer students (increase of 0.20 points).

As previously mentioned, the results also showed a significant interaction between lecture attendance and female status. With respect to female status: the benefit of having perfect class attendance was linked to **greater pre-post subjective wellbeing gains for non-female** (predicted gain of 0.27 points) compared with female-identifying students (smaller predicted gain of 0.13 points). Alternatively, less-than-perfect class lecture attendance was linked with a predicted decline of 0.13 points in wellbeing for non-female students compared to females (increase of 0.11 points).

First-Generation Status Effect on Subjective Wellbeing. Last, first-generation status was generally negatively related to change. Specifically, students identifying as first in their family to go to college were predicted to have near-zero pre-post change ($0.09 - 0.10 = -0.01$ points change) compared to non-first-generation students who were predicted to have growth ($0.09 + 0.10 = +0.19$ points change). See Figure 5 for a breakdown of predicted change in wellbeing by first generation status, pretest, and absenteeism levels.

Psychopathology Model 2 Results. Table 5 reports all fixed effects coefficient model results for psychopathology Model 1 and Model 2, and Figures 7-10 display model-predicted pre-post change across a constellation of pretest and absence values by living status, transfer status, first-generation status, and female status, respectively. Overall, focusing on Model 2, the intercept result indicated **no significant mean pre-post WRC change in psychopathology** ($Coeff = -0.06, p = .382$; recall that lower is better for this outcome). Furthermore, there were no significant differences in predicted psychopathology across quiz sections or course delivery

format. That said, there were significant pre-course psychopathology and campus living status main effects on change, along with three interactions involving class or quiz absences.

Pre-course Psychopathology Effect. Regarding the pre-course psychopathology effect, the coefficient indicated that students who started the course one standard deviation above average (worse psychopathology) were predicted to have a 0.33-point greater decrease than the average decrease of 0.06 points, and vice versa (i.e., students who start out with greater capacity for change were predicted to experience more change.)

Campus Living Status Effect. Regarding campus living status, model results showed **students who lived on-campus were predicted to have a 0.10-point greater decrease than average in their psychopathology**, all else held constant. Although not significant, there was a trend for an interaction between living status and transfer status and between living status and female status on psychopathology change ($ps = .066$ and $.069$, respectively). Based on model-predicted values, transfer students had greater declines in psychopathology if they were also living on campus (see Figure 11), as well as if they were non-female (see Figure 12).

Lecture Absence Interactions. The lecture absence-by-female interaction on psychopathology showed that **females benefited most from perfect lecture attendance** (predicted decrease in psychopathology by 0.18 points, compared to non-female peers predicted to increase by 0.07 points). Contrary to intuition, a trend for an interaction between lecture absence and pre-course levels of psychopathology ($p = .093$) indicated that students with greater initial psychopathology ($+1SD$) *tended* to have less psychopathology decline (0.29 points) if they had perfect attendance compared to those with less-than-perfect lecture attendance (predicted decline of 0.48 points). Another interpretation is that students with lower initial psychopathology

(-1SD) *tended* to have less increase in psychopathology (0.18-point gain) if they had perfect lecture attendance compared to imperfect lecture attendance (0.36-point gain).

Quiz Absence Effects. Model 2 also revealed that there were two interactions related to quiz section absences (pre-course psychopathology and female status). Specifically, model-predicted results indicated that **perfect quiz section attendance more greatly benefited those who started out with +1SD higher psychopathology** (predicted decrease of 0.59 points from pre- to post-course) compared with those who started out with lower psychopathology (predicted increase of 0.35 points). In contrast, the difference between high and low pretest psychopathology was less marked for students with less-than-perfect quiz section attendance (predicted values of -0.18 and +0.18 for higher and lower pretest, respectively).

Regarding the quiz section absence-by-female interaction, predicted values indicated that **non-female identifying students were predicted to benefit the most from perfect quiz attendance** (predicted decrease in psychopathology by 0.22 points, compared to non-female peers predicted to decrease only by 0.01 points).

Last, a trend for a quiz absence-by-transfer student interaction ($p = .057$) indicated that transfer students *tended* to have greater benefits from perfect quiz section attendance (predicted decrease of 0.17 points) compared to non-transfer students (predicted decrease of 0.07 points).

Qualitative Results

Semantic analysis of the semi-structured individual interviews was used to explore research questions four through seven. Across the eight student interviews, 253 excerpts were coded into predetermined and emerging themes using constant comparison until saturation of the data occurred (See Table 6). Emerging semantic themes were identified by recurrence across two or more of the participants. Direct quotations from participants were de-identified and included

in the description below to illustrate students' experiences and perspectives completing the WRC and answer the research questions.

RQ4: Student Perspective and Experiences of the WRC

Student perspectives of and experiences completing the WRC were coded if students described a perspective (i.e., thought, belief, point-of-view, or opinion) or experience (i.e., report or observation of a lived event). Student perspectives of and experiences in completing the WRC was further coded into positive (i.e., beneficial, helpful, enjoyable, likeable, satisfying) and negative experiences (i.e., unenjoyable, dissatisfying, harmful, or undesirable). In addition to describing their overall perspective and/or experience with the WRC, all of the participants described both positive and negative perspectives and experiences completing the WRC related to the WRC content, structure, delivery of course material, and/or how their experiences outside of the course impacted their experience completing the WRC. These participant perspectives and experiences were thus further coded into emerging themes related to the course structure of the WRC (implementation and organization of the WRC), WRC assignments (graded assignments including in-lecture posts, weekly homework post reflections, weekly diary card assignment, and the final exam), WRC lecture (perspectives or experiences related to the attending the weekly WRC lecture), WRC quiz section (perspectives or experiences related to the attending the weekly WRC quiz section), and WRC delivery (perspectives or experiences related to how the WRC content was delivered).

Overall Perspectives and Experiences. Seven of the participants described both their perspective of and experience completing the WRC to be positive with one participant describing his experience completing the WRC to be negative. Students B, C, D, E, F, G, and H described their overall perspectives and experiences completing the WRC to be positive. For example,

Student H summarized her overall positive experience completing the course in the following statement, “I feel like I got a lot out of this class, and the assignments were really helpful and also pretty fun. And the teaching team is obviously really awesome and they're very supportive, too. That's my experience.” As mentioned, one participant (Student A) described his overall experience in the course to be negative; he said, “Honestly, a lot of the material kind of fell on deaf ears a little bit. It's hard for me to really grasp the whole scope of this course when my whole life is kind of piss-poor right now.” He later again described his perspective of the course, saying, “Overall, I'd say this course is effective for those who aren't going through something crazy in their life,” eluding to student-level factors that may impact students' experiences completing the WRC.

Meaning. Five of the participants described the WRC as being a meaningful course to them, using words, such as helpful, beneficial, and valuable to describe the course overall. One student remarked, “I think it [the WRC] was a really valuable class to have” (Student B). Another student described the course content as helpful and important saying, “I thought they [the skills taught in the WRC] were all pretty helpful... They all had, I think, some sort of influence or importance.” (Student C). Yet another participant described their perspective of the WRC through stating, “I feel like what we were actually learning was really beneficial.” (Student D).

Unexpected Benefit. In describing their overall experience completing the WRC, four participants (Students B, C, D, G) specifically described the experience of getting more benefit out of the WRC than they expected to when enrolling the course. For example, Student G described their experience, noting:

I just chose to take the Wellness and Resilience Course because it was an elective and it covered social sciences as well as a writing credit. But then, this quarter was kind of hard for me because of some immigration issues that I was facing, and... I feel like it was, like, perfect timing, because I was dealing with something, you know, so unpredictable, and I was also learning skills to just cope with situations like that. So, I would say my experience was good. I was able to learn skills to emotionally regulate myself, and also to be able to handle different kinds of situations, especially really unpredictable ones.

Another participant (Student B) described her unexpected experience of feeling a sense of connection with her classmates as a result of completing the WRC. Specifically, she described how she had not anticipated feeling lonely when she transitioned to college, but that through the WRC, she met a group of other students through her quiz section whom she developed friendships with. Student C also described an initial “hesitancy” towards the WRC, but how by the end of the course, she felt it to be useful and “overall pretty good.”

Perspective of WRC Structure and Delivery. Participants identified the weekly routine and structure of the course, specific course assignments, the delivery of the course content, the WRC instructors, and the flexibility of the course as something they enjoyed. Specific assigned activities and assignments of the WRC that they liked or enjoyed included the weekly quiz sections (Student B), the weekly homework reflections (Student H and Student D), the weekly gratitude practices (Student B), and the weekly in-class mindfulness practices (Student B, Student D). Participants also identified elements of the course structure they disliked, including the length of the weekly lecture, diary cards, and content delivery. Many of the participants described both negative and positive perspectives of the course quiz section groups.

Structure. Regarding participants' overall perspectives of the WRC structure, four of the participants reported they enjoyed the structured nature of the WRC. For example, Student D described her perspective of the overall course structure, "I feel like everything was structured really well." Another participant, Student A, described enjoying the "week-to-week structure" of the WRC, noting the routine schedule was enjoyable for him. Student F further described how the weekly structure of the course was beneficial to her learning; she stated, "Because we wrote the essays every week, and we went to the quiz section, we practiced it [the content], so I feel like I have a good grasp on how to do it."

Two participants commented that the flexibility of the course structure and the teaching team's willingness to accommodate their specific needs throughout the course to be meaningful. For example, Student F described their experience with the teaching team:

They were always very accommodating and kind towards me, and that was in general a positive experience with the course; that I was able to always do a makeup [assignment] or get work done, and I was able to participate as fully as possible in the assignments.

Student G described a similar experience.

Assignments. Seven participants shared their perspectives of the WRC assignments with six indicating how the assignments were conducive to their learning. Specifically, participants commented on the in-class lecture posts, weekly homework post reflection, weekly diary card, and final exam. Participants shared both negative and positive perspectives of the WRC assignments.

Participants shared both positive and negative perspectives on the weekly diary card assignment, some participants shared how they thought the diary cards were helpful to their learning, while others shared that they were not helpful. For example, Student C shared how the

diary cards were helpful in her applying the skills taught in the WRC outside of the course, “I did notice too, just reflecting back on the course, especially doing the diary cards each week helped practicing those skills almost, like, subconsciously.” Another participant (Student B) shared how the diary cards helped her practice and understand the course content. She described how she and her roommate, who was also enrolled in the WRC, taped their diary cards to the wall of their dorm room and created a competition for who could practice the most skills listed on their diary cards. She said, “that really got me to understand the topics.” Another participant (Student E) remarked the diary cards as being unhelpful to her learning, stating, “I think the diary cards weren't that helpful because it felt like it was just so many acronyms and so many like every single day... And at the end, there was so many skills that it just felt overwhelming.” Student F shared a similar sentiment.

Other weekly assignments participants commented on were the homework posts, in-lecture posts, and final exam. Student D shared about how the weekly homework posts were helpful to her learning stating, “I feel like without the homework, I probably wouldn't have actually remembered the skills very well.” Student A commented on how the weekly in-lecture post assignments helped him attend the course lecture; he said, “If you're gonna wanna learn about mental health, you gotta be there.” Finally, Student H shared about how the weekly homework posts and final exam helped “solidify” her learning of the WRC content.

Lecture. Six participants shared both positive and negative perspectives on the WRC's weekly lecture. Student B commented on her experience with the WRC lectures, stating, “I learned so much from the lecture and from them [the WRC instructors] as well.” Student D shared both a negative and positive perspective of the weekly WRC lecture; she said, “I do think the lectures were kind of long. There were times where I totally could not focus anymore

because you were at two and a half hours...” However, she also described a positive perspective of the WRC lecture stating, “I’ve always thought that when a professor actually cares about what they’re talking about, it’s way more interesting, and they were both very passionate about it, which made me actually pay attention.” Student H also expressed both a positive and negative perspective on the WRC lecture. She said, “Another thing I liked about the class, I think, was the conciseness and clarity of the lectures,” but also said, “I think it [the length of the WRC lecture] really, personally for me, impacted my ability to engage.” Student C and E also expressed their dislike regarding the length of the lecture.

Quiz Section. Six of the participants shared both positive and negative perspectives regarding the WRC quiz section. For example, Student C remarked, “I feel like groups have their positives and their negatives, like, you know, you form a close-knit group, but then you don’t really venture out.” Student B also shared a similar remark, noting quiz section “was a really good way to get people together,” which was something she liked. Student C, D, and F shared about how the quiz sections were helpful for their ability to understand and apply the skills learned in the WRC outside of the course. Student D said:

In the quiz sections, it was way easier to talk to a smaller group of people and bounce ideas off each other and figure out how you could actually use these skills in a real-world sense, rather than just, like, learning about it... So, I feel like quiz section helped a lot to put it into a perspective of how to actually use it.

Student C also described a similar experience of how the quiz sections helped provide her ideas of different ways to apply the skills taught in the WRC:

I would say that going to quiz sections was really helpful, too, because they had us, practice those skills directly, or, like, I guess, put them into action each week, and so that

was something really helpful, too, is that I was able to try it out, see if it worked for me or not, and then choose to implement it into my life afterwards. (Student C)

Finally, one participant (Student A) shared how he disliked the quiz sections, stating, “it doesn't feel like a university class when I'm in those quiz section classes; it feels like I'm back in kindergarten.”

Delivery. Six of the participants described how the course content was delivered impacted their understanding and learning of the WRC content in both positive and negative ways. Participants commented on the number of acronyms used within the course. Student A shared his dislike for the number of acronyms used within the course, “There's too many acronyms. Like, I'm just saying, I can remember one or two acronyms, but when you're throwing DEARMAN, you're throwing REFRESHERS, like, I can only remember half the REFRESHERs because it's such a long acronym.” Contrary to this participant's experience, another participant (Student E) found the acronyms to be helpful to her learning, stating, “I just held on to like those acronyms because when it's all in a small phrase or a few, like initial steps, then it's easier to grab a hold of that.” Student G provided an example of how the REFRESHERs skill presented as acronyms helped facilitate the use of the skill.

Several participants commented on the structured nature in which the WRC content was delivered. For example, Student H shared how the structured nature in which the content was delivered was helpful to her learning; she said:

I feel like the way it [the content] was presented, it was more like... solving a math equation in my head and it was, like, a simple and logical solution to this problem. Rather than in a therapeutic way. At least in my experience, like, when I've gone to therapy, and they tell me, like, “Oh, this is what you should do to help yourself.” It's kind of presented

in a more personal way, which I feel like... when it's in an educational way, or in the way that it was presented in class, I feel like it just stuck to my brain better, and it made more sense.

Similarly, Student E shared about how she enjoyed the structural and logical nature of the WRC. Three other students also commented on the emotional response map used to outline several of the skills taught within the WRC, with mixed perspectives regarding its helpfulness. Student C described a positive experience with the emotional response map as she reported it helped her learning as she was able to visualize the map that provided her specific skills to manage her emotions. However, other participants found the same emotional response map to be ineffective for their learning. For example, Student H said, “The emotional response roadmap... I remember being very, very, confused.”

RQ5: Student Experience Completing the Course Format

All eight participants were asked about their experience completing the course in the virtual or in-person format. Overall, the participants described both positive and negative experiences regarding completing the course in an in-person or virtual format. Regarding the in-person format, the participants commented the size of the class and classroom, presence of the professors, and opportunity to interact with their classmates to be impactful experiences related to the format of the course. Regarding the virtual format, participants commented on the flexibility of the course and opportunities to engage in course discussions to be impactful experiences related to the format of the course.

Learning and Engagement. All eight participants commented on how the format in which they completed the course impacted their learning and engagement. All seven of the participants who completed the course in-person described completing the WRC in-person was

engaging, immersive, and conducive to their learning, particularly as they compared the in-person experience to hypothetically taking the class virtually. For example, Student C described her experience completing the course in-person in the following statement:

I think taking it in person is definitely a lot more engaging, just because, you know, if I were to be sitting right here, right now, taking the course, I think I'd be distracted, like, "Oh, what's out my window? My roommate's gonna come in in a minute..." I definitely think there's more distractions taking it virtually. And then, also taking it in person just allows for more social interaction and connection with people, which I think is really helpful in this course, because we're all kind of, you know, trying to relate to each other and bounce ideas off of each other, and I just feel like that's more effective in person.

Students A, B, D, E, F, and H all made similar remarks, indicating they believe taking the course virtually would impact their learning and ability to sustain their attention and focus during the course classes, citing the emotional salience of the lecture content, the presence of the instructors in the room, and ability to exchange comments and ideas with their classmates as contributing factors. For example, Student B summarized her perspective on the course format in the following statement, "I think if the person doesn't have an opportunity of coming in person, yeah, an online one would be great and would give everyone the fair chance to take the course. But I think it's more beneficial in person."

Only one participant who participated in the interviews completed the WRC in the virtual format. Student G shared he felt taking the course in the virtual format overall did not impact his ability to learn the course content but did impact his engagement in the course. He shared:

At times, it wasn't interactive enough, but I don't think that was anyone's fault, really. It was just the fact that it was virtual, so there were stretches of time where you would just

hear someone talking, and I feel like that can be a bit... I don't know, disengaging.

(Student G)

However, he also shared that he felt he was able to “make it work” completing the class in the virtual format as he took it upon himself to learn the course content by paying attention and engaging his classmates in course activities.

Social Interaction. Three participants also described how taking the course in-person allowed for increase social interaction with their classmates. Student C shared:

For my [quiz section] group, personally, we did interact outside of the course conversations, you know, like, we would usually get to quiz section a few minutes early, and even yesterday, we were talking about, like, “Oh, like, I had a bad hair day,” and I was kind of like, “Yeah, me too,” just things like that. We were very quick to talk to each other, which I don't think would have happened virtually. We probably would have just kind of sat there and waited.

Student D and Student E similarly shared how they felt completing the course in-person provided them with increased opportunity to speak with their classmates. Student G, who completed the course virtually, reported his quiz section group was not very interactive and engaged with one another.

Size and Space of the Class. While all of the participants described a preference for completing the course in-person, a few participants described drawbacks of completing the course in-person related to the size and space of the class. Specifically, they described feeling discomfort because of the limited physical space available in the in-person class. Student H recalled how the space impaired her ability to participate in class activities; she said:

I think the participate activities where you had to, like, dance or, like, do all that stuff, was kind of... I don't think that they were impactful for me and some of my peers. I think that it was just more of an inconvenience for us to do, just because of the space of the classroom.

She also described how it impacted her experience interacting with her classmates, noting, “I didn't like how we had to sit with our quiz section groups. Not because I didn't enjoy sitting with them, just because the seats in the classroom were really small.” Similarly, Student B shared about how the limited space in the classroom impacted her learning after describing how “tight” the classroom space was. She said, “this whole class is about staying focused, but I'm really focused on how I'm not bumping into others.”

RQ6: The Influence of the WRC on Student Mental Health

Participants were asked both generally about how the WRC influenced their mental health as well as specifically how it influenced the two aspects of mental health, wellbeing and resilience, according to the Dual Factor Model of mental health described earlier. Participants shared overall perspectives on if and how the WRC influenced their mental health. Participant excerpts were coded into an overarching category of “WRC Influence on Student Mental Health” if the participant was describing an impact, influence, or effect of the WRC on their mental health (including emotions, life satisfaction, wellbeing, ability to overcome or manage challenges, stress, affect, mood, and health). Participant excerpts were further coded into positive influences or negative influences on their mental health as well as influence on their resilience (the ability to manage stress, overcome challenges, and recover from adversity) and wellbeing (i.e., happiness or life satisfaction). Lastly, as participants shared their experiences in how the WRC influenced their mental health, two emergent themes were identified: 1) barriers, i.e.,

factors that inhibited, prevented, blocked, or impinged on the potential of the WRC to influence their mental health and 2) facilitators i.e., factors that promoted, supported, strengthened, or enhanced the WRC's influence on their mental health.

Positive Influence on Mental Health. Seven of the eight participants (Students B, C, D, E, F, G, and H) described how they felt the WRC influenced their overall mental health in a positive way. One participant (Student A) shared how the WRC impacted his mental health in both negative and positive ways.

Many participants shared how they felt the WRC impacted their mental health positively. For example, Student B described the impact the WRC had on both her own mental health as well as her WRC classmates' mental health. She remarked:

All the acronyms, the gratitude, the stress relievers... definitely benefited my mental health. Like... through this class, I realize how much people do struggle with mental health, and how much my peers in the class mentioned how this class has really helped them go through a lot of things, which makes me really happy to see. (Student B)

Student H described how attending the course weekly positively influenced her mental health; she said:

I feel like the skills, such as the Crisis Survival skills, I use those, and I use Opposite Action a lot... I feel like this course, not only the skills, but I feel like going every week just reminded me that my stress is not gonna last forever. I feel like sometimes in college, when you're just piled on with assignments, and you're working, and you have all your extracurriculars, it can often feel like you're in this dark, like, deep fog of just so many things to do. So, I feel like going to this class is a reminder that you're gonna get through

it and there is a light at the end of the tunnel and your stress can be managed and it won't last forever, so you're gonna be fine.

Student C also shared how the WRC had a positive impact on her mental health through how it impacted her emotions. She shared:

I'd say it [the WRC] definitely had a positive impact on that. I think a lot of that comes from being able to kind of, like, regulate myself. Like, I'm feeling happier because I'm less... tense all the time, you know, not worrying about this, that, or the other. So, I'd say that it had a big positive impact on my wellbeing in that way... I think my emotions are more balanced, you know? I feel neutral most of the time versus feeling like I need to be happy in this moment, or I'm, like, sad about this thing. I just feel very at ease.

Other participants (Student A, Student B, and Student D) described how the WRC influenced their awareness of their mental health. For example, Student D shared how she felt the WRC was beneficial to her mental health as it made her “more aware,” “less stressed,” and “more calm.”

Expanded Toolkit. Three participants (Students C, F, and H) commented on how the WRC expanded their toolkit of skills for improving their mental health. For example, Student F described the overall impact of the WRC on her mental health in the following statement:

I believe that it [the WRC] maybe didn't have a super big effect in the sense of, like, I fortunately wasn't struggling greatly, but I feel like it definitely helped me build a toolkit for if I was, you know, on the off days or in the off moments where I was feeling, like, specific ways, I knew how to help myself just, you know, kind of level myself out.

Similarly, Student C shared:

I think it [the WRC] definitely did, like, it... gave me resources. So, I think even though, obviously the class isn't a therapy session or anything like that, and so it's not any kind of

fix, but I think I've been able to manage my emotions a lot better because I now know how to, whereas before, I hadn't really figured out a way to do so.

WRC Skills that Influenced Mental Health. Two participants named specific skills taught in the WRC to positively impact their mental health. For example, Student D described how the REFRESHERs skill taught in the WRC helped her realize how she can take care of her mental health and take care of her body to have a “good mind.” Similarly, Student H noted how she used the skill of Opposite Action to improve her mental health.

Negative Influence on Mental Health. Student A described how the WRC had both positive and negative impacts on his mental health. Similar to other students, he also shared how the WRC increased his awareness of his mental health. Though dissimilar to other students, he described how this awareness and other aspects of the course had contrasting influences on his mental health. For example, Student A shared how learning about the different aspects of mental health made him “feel bad” for not engaging in those aspects. Though he also state, “But it also made me realize that maybe it wouldn't be such a bad thing if I did do it.” He also shared about how the workload of the WRC assignments negatively impacted his mental health.

Impact to Wellbeing. According to the Dual-Factor Model of Mental Health, mental health is not just the ability to manage and overcome stress and challenges, it is also the ability to thrive in spite of these challenges and have high subjective wellbeing. Thus, participants were asked if and how the WRC impacted their wellbeing (i.e., happiness or life satisfaction). Student D described how the WRC impacted her overall wellbeing through the following statement:

I feel like it [the WRC] just altogether made me happier because I've always enjoyed meditation and being more calm and level-headed, but I feel like this class kind of just brought everything together. I feel like it took lots of random skills that I probably would

have never learned had I not taken this class. And I think that it was super beneficial to me because I never had bad mental health, or anything like that, but it definitely made me look at everything a little bit differently... like even in the homework when you had to say what you're grateful for each week, that was one little thing that made me look back on my week and be like, "Wow, that was actually great, you know?" Everything kind of tied together. You just realized how lucky you are and how everything is just gonna be fine and work out.

Similarly, Student H also described how the gratitude skills helped her have a more positive perspective:

I mentioned, the gratitude thing before. That was definitely a way to kind of go towards positive emotions and kind of acknowledge all the good things you have and how to become more positive, because when you're grateful, your thinking shifts to become more positive.

Student G also highlighted how the weekly gratitude practices impacted his wellbeing; he said, "Even though I was going through a lot during this quarter, writing about the good that happened that particular week was kind of... it just brings positive emotions and you just get a positive outlook on life." Student G also shared how the skills taught in the WRC helped him have a "glass half full attitude." Interestingly, despite these remarks, Student G also shared an inconsistent perspective that he believed the WRC did not have an overall impact on his wellbeing. Specifically, he said, "I don't think I really took benefit from the skills that were taught to basically help cultivate positive emotions."

Positive Emotions. Five participants shared how the WRC impacted their ability to experience positive emotions. For example, Student C described how the gratitude skills

impacted her wellbeing. She shared, “It did help with experiencing positive emotions, just because it is something that I did already do, but I do it, I think, more frequently now.” Student C shared how the REFRESHERs skill taught within the WRC helped lift her mood; she shared:

REFRESHERs really made me realize that I wasn't quite taking care of myself the way that I needed to be, like, I was only getting 5-6 hours of sleep every night and I was procrastinating on my work because of that. And so that was kind of the biggest part of REFRESHERs, is that I started committing to getting more like 7 to 9 hours, and it seriously changed everything. I've been feeling just so much more energized and ready to go, more motivated, more interested in my work, and so those definitely had a big impact on me.

Life Satisfaction. Several participants shared how the WRC impacted their life satisfaction. For example, Student F shared about how the weekly gratitude practice in her homework post reflection helped expand her perspective of what she was grateful for. Similarly, Student B also shared how the weekly gratitude practice improved her life perspective. She shared the following sentiment regarding how she felt following completing 10 gratitude reflections over the WRC, “Like, there's just so much stuff to be grateful for that I just didn't realize how lucky I am to have.” Student E yet again described how gratitude impacted her perspective on her life. She shared, “Just reflecting on so many things in general just made me like happier because of my increased awareness.” Overall, all but one of the participants (Student A) described how the gratitude skills taught and/or practiced within the WRC contributed positively to their wellbeing.

WRC Influence to Resilience. As part of the Dual-Factor Model of Mental Health, one of the components of mental health is resilience, that is, the ability to manage stress, overcome

challenges, and recover from adversity. Thus, participants were asked specifically if and how the WRC impacted their resilience. All participants described experiences of how they used the content taught via the WRC to help manage challenges, negative emotions, and stress. Seven of the participants named specific skills, including the Dialectical Behavior Therapy (DBT) crisis survival skills (TIPP, ACCEPTS, IMPROVE, and Pros and Cons), the DBT emotion regulation skills (Radical Acceptance, Check the Facts, Opposite Action, Turning the Mind, and Mindfulness), skills for effective problem-solving (WOOP), and the DBT interpersonal effectiveness skills (DEARMAN, GIVE, and FAST).

All eight participants described generally how the WRC skills helped them cultivate resilience in the face of challenges. For example, Student G described how the skills taught through the WRC helped him manage a difficult and unpredictable quarter, which included challenges such as dealing with difficult emotions related to immigration issues. Other participants also described how the WRC helped them manage anxiety and stress. Student E shared:

Personally, I go through like a lot of anxiety and I feel like just understanding, like some of the acronyms like I can remember it's like TIPP, like what happens when your [emotional] thermometer goes like too high and stuff... And I feel like when you just take it in, you actually let that anxiety flow through you... And I think I learned that from this course really well and I think that was an aspect that really helped me get through anxiety and get through stressful times.

Similarly, Student C shared how the WRC helped her anxiety; she said:

I think it [the WRC] really helped with anxiety. That's something that I've kind of dealt with a lot throughout my life, but I think with the course, it really helped me realize

different ways that I could take a step back and just kind of breath and figure things out instead of immediately freaking out or giving myself more anxiety. Like, a lot of the emotional regulation or dysregulation skills that we learned about helped with that because it made me realize that I have signs when I'm getting super stressed or having a lot of anxiety, and I can control them instead of just letting it build up.

Lastly, several participants described how the WRC helped them manage stress specifically related to academics. For example, Student B shared, “My first finals week, it's tough. I did drop a class, which I wasn't proud of at first, but I think this class really helped me get through it as well” and Student G shared how the WRC skills helped him manage stress related to his STEM courseload.

WRC Skills Used to Cultivate Resilience. Seven participants described how they used specific skills taught in the WRC to manage negative emotions, stress, and overcome challenges. For example, a few participants shared how they used the skills taught in the WRC helped them navigate conflict in relationships. Student B described how the interpersonal effectiveness skills helped her overcome conflict with her roommate and peers; she remarked:

I took this class with three friends and a roommate. So, we have this really good joke going on that's stopped a lot of arguments. With me and my roommate, for sure, because... we would bicker on and off all the time, but the Check the Facts thing is really working... We're, like, giggling while we do it, but we're stating the facts, and we're understanding each other.

Similarly, Student C described how the interpersonal effectiveness skills helped her ability to address conflict with others:

I thought that [the interpersonal effectiveness skills] were really helpful, too, because it gave me more of a map of how to bring things up... And I'm more comfortable being, I guess, confrontational without coming off as aggressive, or making the other person feel bad, or saying something that might upset them.

Other participants named different skills taught in the WRC that helped them manage negative emotions. Student G shared how Pros and Cons, ACCEPTs, and TIPP helped him calm down in a crisis situation he was in related to immigration. He also shared how he used the skill of Radical Acceptance to navigate stress related to academics:

Radical Acceptance was... is one that I think I found helpful. Like, especially this quarter, my grades weren't as high as they have been in previous quarters, but I've realized that I was dealing with, like, a lot of added stress and it's my first quarter in computer science, so I should be more forgiving towards myself in particular and I should also, like, accept the fact that maybe I didn't study enough, and, you know, I should move on and think about the future instead of just dwelling in the past and thinking about, "Oh, I could have studied more for the final exam," and "Maybe I could have gotten a better score." So, radical acceptance is one that I think I found helpful, especially, this past week, I would say.

Student D described how she used the WOOP skill to manage stress related to choosing a major among other challenges; she said, "This idea of a plan is kind of helping me stress a little bit less about it because I can make a plan and if there are these obstacles, I can still do it...I feel like that's helped a lot."

Factors that Limited the Impact of the WRC on Student Mental Health. The WRC was designed to improve student mental health through teaching participants skills and strategies

that they can use to improve their resilience and wellbeing. The WRC provides both information on what the skills are and how to use them as well as the opportunity for students to practice and implement the skills through WRC assignments and course activities. As such, participants shared experiences and perspectives to factors that limited or impaired their ability or likelihood to leverage the WRC skills to improve their mental health. Specifically, participants named lack of skill understanding, lack of skill resonance, lack of necessity to use the skill, lack of transferability/applicability to real-life situations, the number of skills, and personal factors as barriers to them leveraging the WRC skills to improve their mental health.

Lack of Understanding. Three participants expressed confusion surrounding how to apply the skills taught within the WRC to improve their mental health. For example, Student H shared about how she understood what the REFRESHERs skill was, but felt the WRC did not provide information on how to use the skill within her life; she shared, “It didn't really give me the steps to make sure that I am enforcing REFRESHERs in my life. I didn't digest it.” Student B and Student E also expressed that the number of skills taught within the WRC impaired their ability to know which skill to apply in a given situation.

Lack of Resonance. Other participants expressed certain skills taught within the WRC either did not resonate with them or they did not feel they had the need to apply certain skills. For example, Student A shared how the REFRESHERs skills did not resonate with him as he did not “value friendships or nature like other people do.” Student G shared how the nonjudgemental mindfulness skill did not resonate with him. Other participants remarked how they did not feel the need to apply certain skills to their life. For example, Student B and Student F reported how they did not feel certain skills were necessary to apply as they were already naturally engrained into their skillset. For example, Student F shared, “I think maybe the value clarification thing,

mostly because I felt like I knew kind of what my values were, and I just... it didn't feel incredibly useful to me personally.” Student B shared how she felt she used the WOOP skill so many times that the skill lost its’ value and benefit.

Lack of Applicability/Transferability. Several participants shared how they felt certain skills did not apply to their lived experiences which inhibited their ability to apply the skills taught within the WRC to situations in their lives. For example, Student B shared how always practicing the mindfulness skills within a group setting impaired her ability to apply them when she was alone. Student B said, “If you tell me to do, like, a mindfulness practice right now, I think I would find it really difficult, because I'm usually doing it with a group.” Other participants shared how they felt the skills were not applicable to real-life situations. For example, Student E commented on the WOOP skill in the following statement, “I can't even remember because it felt so irrelevant to me... It just felt like it's not gonna come naturally by saying I'm gonna do this every week and being set in stone because life is not like that.” Student A shared how the skills of Opposite Action, Pros and Cons and DEARMAN taught within the WRC did not adequately fit into the complexities of real-life situations. For example, he shared how he felt the DEARMAN skill would not be effective in real life because others will not be able to respond skillfully; he said, “It's kinda... ineffective in a way because most people that haven't taken the class or don't know about this or aren't gonna be thinking like that so, it's not gonna match up perfectly in an ideal world.” He also described a similar perspective regarding the Opposite Action skill taught within the WRC; he shared, “Because it's never gonna be that black and white, you know? I feel like it leaves out the context of the scenario.”

Two participants shared how personal hardships got in the way of using some of the WRC content. Student A shared how his personal hardships impaired his ability to comprehend

the information and skills taught; he remarked, “If I took this course maybe any other quarter, it would be more effective, personally. I've just been really isolating myself recently, because there's just so much coming at me, it's just hard for that poor message to shine through.” Student G described how his personal challenges also made it difficult for him to apply some of the skills; he shared, “Maybe it's just because I was in that mental state where managing my stress was the biggest priority for me, and the positive emotions were kind of sidelined.” Student D expressed how she felt she did not need to use the skills for managing high-intensity emotions as the WRC was already providing her skills to inhibit her emotions becoming very intense; she shared:

I feel like I haven't used them [the Crisis Survival skills] too much because I don't really find myself getting above 65 or super stressed about things. But I think that's because I was taking this class at the same time that it was already helping me.

Factors that Facilitated the Impact of the WRC on Student Mental Health. In addition to exploring barriers that limited the impact of the WRC on student mental health, facilitators were also explored. Many of the participants provided insight into factors that facilitated the use of the WRC skills to improve their mental health. They named specific skills, assignments, and other elements of the WRC among personal factors that help facilitate their skill use.

WRC In-Class Activities. Three participants described how some of the WRC assignments and in-class activities helped facilitate the use of the WRC skills to improve their mental health. For example, Student D described how the in-class mindfulness practices helped provide her ideas of how to use and do the mindfulness practices outside of class. She also

described how the quiz sections improved her knowledge and expanded her perspective for how to apply the skills outside the course context; she said:

In the quiz sections, it was way easier to talk to a smaller group of people and bounce ideas off each other and figure out how you could actually use these skills in a real-world sense, rather than just learning about it... So, I feel like quiz section helped a lot to put it into perspective for how to actually use it. (Student D)

Similarly, Student C also described how the quiz section group activities helped strengthen her ability to apply the skills to her life outside of the course; she shared:

Having the [quiz section] group did kind of make more of an impact, or make it more helpful. For our group, we got along pretty well and so it was really helpful that we were just very open with each other, like, we worked well together. And I definitely did notice that a lot of times, maybe we have a worksheet that we were filling out individually, and then somebody else would mention something they put on theirs, and I would think, “Oh, right, that applies to me, too.” So that aspect was definitely helpful as well; that other people were thinking differently, but then it would be a reminder of things that maybe I want to apply, or that I already have been, and just hadn't thought about.

WRC Assignments. Other participants described how the course homework assignments helped facilitate their skills learning and practice. For example, Student D described how she felt the weekly homework post reflections helped her apply the WRC skills outside of the context of the course. Student D remarked:

I like how in this class you actually got to use the things you were learning, which I feel like helped me actually remember it and remember the skills because I feel like without the homework, I probably wouldn't have actually remembered the skills very well.

Student C described how the WOOP in the weekly homework post helped facilitate her skill use outside of the course context; “The WOOP kind of did remind me of my goals and stuff that I wanted to do in the week.” She also shared how quiz section was helpful”

And then I would say that going to quiz sections was really helpful, too, because they had us practice those skills directly or put them into action each week. And so that was something really helpful, too, is that I was able to try it out, see if it worked for me or not, and then choose to implement it into my life afterwards. (Student C)

She also shared how the weekly diary card assignments also helped her practice the skills outside of the WRC context “more naturally” and “almost subconsciously.” Similar to Student C, Student B shared how the repeated skill-practice through in-class and course homework assignments helped her ability to apply the skills outside of the course. For example, she said, “this [completing a weekly gratitude practice] is something I definitely wouldn’t have done if it wasn’t an assignment.” Student H described how the final exam in the course helped her ability to apply the skills to her life outside of the course context; she shared, “I think the final was also really good in helping me solidify the skills I was learning and apply them to real-life situations.” Student B also shared how she and her roommate turned their diary card assignment into a competition between the two of them for who could apply the skills the most outside of the course. She recommended all students take the class with a friend, roommate, or partner as she highlighted how this aspect helped her learn and apply the skills through the course assignments; she said, “I think this class should be a duo class.”

Q7: Influence of Student Identity on WRC Experience and Mental Health

All participants were asked about if and how their identity related to their experience completing the WRC or their mental health more generally. Participant excerpts that described

relations between their identity or unique lived experience was coded into a theme of “Student Identity and the WRC” and participants excerpts that described relations between their identity and mental health (i.e., stress, resilience, mood, wellbeing, emotions) were coded as “Student Identity and Mental Health.” Lastly, three participants described how they believed their identity did not influence their experience completing the WRC or their mental health.

Student Identity and the WRC. Overall, five participants described how their identity and/or lived experience influenced their experience completing the WRC. Participants described how their cultural identities and prior mental health problems to be influential to their experience completing the WRC.

Influence of Culture. Some participants identified has having cultural identities that they felt either aligned and/or contrasted with the cultural roots of the WRC. For example, Student H shared the following perspective:

I'm Buddhist, so it [the WRC] takes a lot from Buddhism, or at least reflects a lot of the values... However, I think that the course could do more in reflecting that these ideas and theories aren't just developed from the Western world.

Student G also shared how the WRC both contrasted and aligned with some of his values and beliefs rooted in his Indian culture; he shared, “I think a lot of the material kind of challenged cultural notions that I grew up with about how I perceive mental health, and how I perceive being well and living in this world, and being a healthy person.” Similar to Student G, Student E also shared how the beliefs shared in the WRC about mental health were different from those that she grew up with. She said, “I think the management of your emotions and replacing them for a positive one or just taking in your emotions... I think that's very different from my

background and how I was raised.” Student G further expanded on how his identity influenced his experience completing the WRC in the following statement:

So, American culture and basically the idea of this course was also kind of rooted in individualism, where you think about yourself as a person. I think the culture that I grew up with and the country I grew up in, this idea of individualism... it isn't engrained into our minds that we are an individual. It's just you're part of a society and then whatever you do with your life has to go with certain societal standards. So, I feel like the idea and the essence of individualism that was kind of all part of the course was kind of different from just the culture I grew up in.

However, Student G, also shared how the WRC shared some parallels with his cultural beliefs, he remarked:

The culture I grew up with is very community-centered, where everything happens in a community and I think that was something that the course also focused on, where you build relationships with people, and you rely on other people for your mental health. So, I think, even though, I would say that mostly the course was focused on an individual, but it also focused on this idea of community, and having community that you can rely on for your individual self.

Student E also shared how the WRC both contrasted and aligned with various aspects of her identity. She noted how the beliefs about mental health taught through the WRC aligned with the beliefs and values the community she grew up, but did not align with the beliefs of her family members.

Influence of Mental Health. Three students commented on how their prior mental health challenges influenced their experience completing the WRC. Student A highlighted how he felt

the course was designed for helping students with low-level stress and how his high levels of stress during the quarter impacted his ability to focus and comprehend the content throughout the WRC. He said, “It's just really hard to comprehend lecture material when you're going through such emotional distress constantly through the quarter.” He also shared how his identity as an individual with Asperger’s syndrome may have impacted his experience in the WRC:

I think it [the WRC] was made for people who are already maybe conscious about mental health, or at least know a bit and how they emotionally regulate. For somebody like me, who's really emotionally detached a lot of the time, I found it hard, obviously. And that could be also my Asperger's coming through, too. I find when you're in that mindset, trying to relate emotionally is a lot harder for people like me. (Student A)

Student F shared a perspective consistent with Student A’s perspective, she said:

I feel like, I know about mental health and stuff before because I tend to be an anxious person, and so I've had advice and I've met with a therapist and whatnot about, like, what makes me anxious and how to control that, and then working with the EDUC [WRC] content in general, I felt like I had a little bit of prior knowledge going into it. But getting the skills was still nice, because it helped just build on the knowledge that I had.

However, contrary to Student A’s perspective, Student B shared how the WRC was helpful to her during a particularly challenging quarter.

Student Identity and Mental Health. Four participants (Students B, E, G, and H) also shared how their identities impacted their mental health more generally. For example, Student H described how her identity influences her mental health in the following statement:

I think just having that generational trauma and being a first-generation college student and navigating the college experience without really having that guidance was really

hard, and also coming from a low-income background, I feel like all of those, like, things made it pretty difficult to just understand, like, what is college? Like, what am I doing here? Like, what am I even supposed to do here? And so, it did impact my mental health a little bit. Like, there was times where I felt just kind of isolated and just very different from other people. However, I think that I was very lucky to have found a community of students and friends on campus that share these identities with me. I feel like we support each other, and I think that UW also does a good job of having spaces for people that are a part of these identities. I think that they hold a lot of space for people to just, you know meet other people like us. I think that yes, it impacted my mental health in negative ways, but I think in all, I wouldn't have met and have had the community that I do now if I weren't to have experienced those things. So, I think, overall, it's had a positive impact.

Student B also shared how her identity as a first-generation college student impacted her mental health, “I'm first generation... so it's completely new to me and let me tell you, it's stressful.”

Relationship Between Identity and WRC on Mental Health. Three students commented on how student identity either influenced or could influence the impact of the WRC on mental health. Student B shared how her ethnic identity, identity as a first generation-college student, and low-income student impacted the way she applied the skills from the WRC to her life. She said:

I'm Chinese, I'm first generation, I'm low income, I work a part-time to support family and I can imagine maybe someone who is, like, financially stable currently, who doesn't work and is focusing on school could be having other troubles with, like, personal life, so they could be applying different skills. But for me personally, I think I've given all the skills a fair chance, and the ones that land, just landed and in that way. (Student B)

Contrary to Student B's experience, Student A and Student H described how they felt the WRC did not address mental health problems related to student identity and lived experiences, which may have limited the WRC's impact on students' mental health for student holding certain identities. For example, Student H shared how, in her experience, the WRC did not necessarily provide students with the skills to help manage difficult emotions and situations they experience related to being a first-generation college student, an international student, an immigrant student, a refugee student, or a student with intergenerational trauma. She shared her perspective and experience about how her and other students' identities impacted their experience completing the WRC. She said:

There's a large number of first-generation college students and large immigrant or refugee community at UW in general, and I also identify with that. So, I feel like knowing a lot of the people like that, and I met a lot of international students in the class too, so I think it would have been important to mention something regarding, like, intergenerational trauma, and how you could still hold those feelings and how to deal with that, if that makes sense? Because, you know, like leading college when nobody else in your family has led college, it may just be very unique and even a distressing experiencing for some. And I think for some international students, I had some in my group, and they were talking about how it's a little lonely and how it's hard because they're not from here and they go to college here, and Seattle's like muggy sometimes and ugly and it's hard to make friends sometimes. And I feel like, maybe reflecting their experiences could have been really helpful because there is such a large community within that class especially. (Student H)

Student A also shared a similar perspective in that he felt the WRC did not provide students skills to manage stress associated with systemic discrimination problems:

It [the WRC] doesn't cater to people of different backgrounds and origins... I am a white man, but it feels kind of like this course is designed for somebody like me that doesn't have to deal with prejudices... they don't have to deal with discrimination on a daily basis. Like they [the WRC instructors] didn't go over that stuff, that's for sure. Like, it was designed for somebody that has just to deal with low-level stress and maybe not systemic stress.

However, Student A and Student H's perspectives are inconsistent with Student G's experience in how the WRC helped him manage stress related to his immigration issues as an immigrant student as well as Student B's experience in using the WRC to help her navigate stress related to being a first-generation college student.

Integration of Results

A convergent mixed-methods design was employed to examine the impact of the WRC on undergraduate student mental health using both qualitative and quantitative data analysis and integration of the research findings. The integration of qualitative and quantitative findings was used to compare and validate the findings from each strand, use the qualitative findings to illustrate the quantitative findings, and better understand the research problem, which is to investigate the impact of the WRC on student mental health when delivered at a large, universal scale to a diverse body of undergraduate students. As such, a convergent mixed-methods design allows for better understanding the relationship between the WRC and student mental health and how both student-level and course-level factors may influence this relationship through the integration of quantitative and qualitative strand findings. The integration of the findings allowed

for the use of both the quantitative findings, that indicated the degree to which mental health changes occurred and the degree to which student-level and course-level factors impacted these changes, and the qualitative findings, that indicated insight into *how* these changes occurred. A summary of the quantitative and qualitative findings and mixed-methods inferences of the merged findings are presented in Table 8. Furthermore, six participants from the qualitative strand also participated in the quantitative strand and their quantitative findings are presented in Table 7.

Impact of the WRC on Student Mental Health

Overall, the quantitative and qualitative findings of this study exhibited both consistencies and inconsistencies across strands. Quantitative data indicated students experienced no significant change in mental health after completing the WRC, while qualitative data indicated the WRC positively influenced student mental health for the majority of participants. The qualitative findings were inconsistent with the quantitative findings in that students more often described ways in which the WRC helped them navigate stress, challenges, and mental health problems and cultivate an improved subjective wellbeing. All but one of the participants interviewed in the qualitative strand indicated the WRC had an overall positive influence on their mental health. However, the quantitative findings indicated a near significant trend for an increase in student subjective wellbeing, which is more aligned with student experiences described in the qualitative strand for how the WRC helped to enhance their subjective wellbeing. The quantitative outcomes from the participants who participated in both the quantitative and qualitative strand also show inconsistencies; of the five participants who indicated positive effects of the WRC to their subjective wellbeing, only two show quantitative improvements in subjective wellbeing outcomes consistent with their reports.

All eight participants interviewed provided both positive and negative influences of the WRC on their mental health. For example, one student described how the WRC helped alleviate feelings of loneliness by helping her foster connections with her WRC classmates and how the WRC helped her navigate stress related to academics, finances, and living on campus. However, the same student described negative experiences in completing the WRC, such as having to complete the weekly WOOP in the homework post and sitting in the cramped, long three-hour WRC lecture. It is possible student's positive and negative experiences in the WRC are not uniquely reflected in the quantitative findings, but consistent with the overall lack of change seen in the quantitative findings. Finally, some students described gaining resources, knowledge, and skills to increase positive emotions, reduce and manage negative emotions, improve their perspective on their life, and manage stressors and challenges, but that the WRC did not directly influence their mental health overall. These findings appear to be more consistent with the quantitative findings in that the WRC positively influenced students, but not to a significant degree.

Influence of Course-level Factors on the WRC and Student Mental Health

Course Format. Both consistencies and inconsistencies were found between the quantitative and qualitative findings regarding course-level factors that may have influenced the relationship between the WRC and student mental health. Quantitative findings specifically examined the influence of course format on student changes in mental health and found no significant differences in student mental health changes after completing the WRC, regardless of whether they completed the course in the in-person or virtual format. In some ways, the qualitative findings support the quantitative findings in that the participant who completed the course in the virtual format reported the class format did not impact his learning of the WRC

content. However, in other ways, the qualitative and quantitative findings were inconsistent with regard to this topic; while participants indicated the course format did not significantly impact student changes in mental health, they reported the course format influenced their experiences completing the WRC.

Dosage. Quantitative data yielded interesting findings related to a possible dosage effect of the WRC related to student attendance to the WRC lectures and quiz sections. More specifically, lecture attendance was found to significantly predict changes in student subjective wellbeing, but not psychopathology. Additionally, lecture attendance interacted with other predictor variables to predict changes in student mental health. Similarly, quiz section attendance was also found to significantly interact with student-level predictor variables. While class attendance was not examined directly through the qualitative strand of the study, interview participants provided insight into their experiences in the WRC lectures and quiz sections that may help explain the quantitative findings.

Regarding the WRC lectures, the interview participants expressed mixed perspectives towards the WRC lecture. Consistent with the quantitative findings, many of the participants described positive experiences with the WRC lectures, noting its' helpfulness to their learning, understanding, and ability to apply of the course content to their lives. They also highlighted the benefits of interacting with their classmates throughout the lecture and clarity and conciseness with which the WRC content was delivered. However, they also noted some negative experiences including the lecture length and the size and space of the classroom that were inconsistent with the quantitative findings.

Similar to the lecture experiences, qualitative findings indicated students had both negative and positive experiences with the WRC quiz sections. One student described a negative

experience with the course quiz section, however, most other students described positive experiences with the quiz section. One participant even noted how the WRC quiz sections helped her manage feelings of loneliness by fostering connections with her quiz section classmates. While a direct impact of quiz section attendance on student mental health was not reflected in the quantitative data, the interactions found between quiz section attendance and student-level factors were reflected in both the qualitative and quantitative findings, further described in the section exploring student-level factors, the WRC, and student mental health below.

Inconsistent with the quantitative findings, the qualitative findings suggested the ability to miss WRC classes may actually benefit the mental health of students. Two participants described how they appreciated the flexibility to miss a WRC class when needed and that this flexibility was supportive to them in managing external challenges. These students noted they completed alternative assignments when they missed a class that allowed them to make up their learning and practice of the course material. Make-up assignment completion in place of class attendance was not assessed in the quantitative strand and thus, this nuanced relationship between WRC flexibility, student learning, and mental health may not be reflected in the quantitative data.

Influence of Student-level Factors on the WRC and Student Mental Health

Both consistencies and inconsistencies were found across qualitative and quantitative findings regarding student-level factors, the WRC, and student mental health. Quantitative findings revealed several student-level factors that were not found to be uniquely predictive, but interacted with other variables to predict changes in student mental health. Qualitative findings revealed the ways in which student-level factors, including their identities and lived experiences, influenced their experience completing the WRC, their mental health, and the relationship

between the WRC and their mental health. The quantitative outcomes from the participants who participated in both the quantitative and qualitative strand also show both consistencies and inconsistencies with the findings from each strand.

Pre-course Levels of Mental Health. Quantitative data showed student pre-course levels of mental health significantly predicted change in mental health after completing the course. The direction of change suggests students with poorer levels of mental health at the beginning of the WRC experience greater increases in mental health after completing the WRC. More specifically, results indicated students with higher levels of psychopathology at the beginning of the WRC had significantly greater decreases in psychopathology after completing the WRC and students with lower levels of subjective wellbeing at the beginning of the WRC had significantly greater increases in subjective wellbeing. This is consistent with many of the experiences described by students, which indicate that those with higher levels of mental health challenges at the beginning of the course were better able to leverage the WRC skills to improve their mental health. For example, three students described how they experienced anxiety and their background knowledge for how to manage their anxiety enabled them to build and expand on that knowledge to better leverage the WRC skills to manage challenges related to anxiety. These participants' experiences appear to be aligned with the data. However, another participant described how his mental health challenges impaired his ability to learn and leverage the WRC skills, noting how his poor mental health challenges made it difficult to attend and comprehend the WRC lectures and apply the skills to his life in a meaningful way. This participant's experience is inconsistent with the quantitative results. The quantitative outcomes from the participants who participated in both the quantitative and qualitative strand are also consistent

with the quantitative findings and with the majority of perspectives shared by the participants in the qualitative strand.

Quantitative findings also yielded interactions between pre-course levels of subjective wellbeing and transfer student status and female status as well as between pre-course levels of psychopathology and class attendance. No transfer students were interviewed within the qualitative strand of this study, so integrated findings are inconclusive for the relationship between pre-course subjective wellbeing, transfer status, and changes in student mental health. However, several female students were interviewed as part of the qualitative strand of this study, though they did not provide any specific insights between the relationship between their gender identity, pre-course levels of subjective wellbeing and changes in subjective wellbeing over the course.

Quantitative findings also showed pre-course changes in psychopathology to interact with WRC quiz sections attendance. Results indicated for students with higher levels of psychopathology at the start of the WRC, students who were absent from one or more quiz sections had significantly greater increases in psychopathology as compared to students who attended all quiz sections. This is consistent with some of the experiences participants described in the qualitative portion of this study who described quiz section to be beneficial in increasing social interactions and connections with others and improving their ability to understand and apply the WRC skills in meaningful ways, both of which are expected to contribute to mental health. However, two other participants described how the ability to miss a WRC helped them manage challenges related to their mental health. Since the quantitative data did not account for students' participation in make-up assignments, this unique experience could not be reflected in the quantitative findings. Additionally, one student who reported higher levels of mental health

problems throughout the WRC also described his experience attending quiz section to be negative, which is inconsistent with the quantitative findings.

Transfer Status. None of the participants included in the qualitative portion of the study identified as a transfer student. Thus, it is not possible to integrate quantitative and qualitative findings regarding the relationship between student transfer status and changes in mental health after completing the WRC. Quantitative findings showed transfer students with higher levels of pretest subjective wellbeing, those that had perfect lecture attendance, had greater gains in subjective wellbeing after completing the WRC and transfer students who lived on campus and had perfect quiz section attendance had greater decreases in psychopathology after completing the WRC.

Female Status. Inconsistent results were found across qualitative and quantitative strands regarding the influence of female identity, the WRC, and student mental health. Quantitative results indicated mixed findings between the relationship between female identity, class attendance, and student changes in mental health. With lecture absence appearing to yield greater increases in subjective wellbeing for non-female students as compared to female students. However, the reverse was found for lecture absence and change in psychopathology, such that, lecture absence appeared to promote greater decreases in psychopathology for female students as compared to students of other genders. Furthermore, perfect quiz section attendance was associated with greater decreases in psychopathology for non-female students as compared to female students. While most participants included in the qualitative strand did not describe specific gender-related experiences, two of them indicated their female identity contributed to the resonance of the WRC content. One participant provided insight into her experience with gender and quiz section attendance. She described how her quiz section group members all

identified as female, which she found enhanced their ability to relate and connect with one another; however, she also described how she anticipated the benefit of expanded perspective with increased diversity among quiz section group. Taken together, the qualitative findings do not wholly explain the relationship between gender, WRC attendance, and changes in student mental health seen in the quantitative findings.

First-Generation Status. Both quantitative and qualitative data provided insight into the relationship between first-generation status and changes in student mental health after completing the WRC. Quantitative findings indicated first-generation students had significantly greater decreases in subjective wellbeing as compared to non-first generations students. This is inconsistent with the qualitative findings in which one participant described how the WRC helped alleviate challenges she experienced related to her identity as a first-generation college student, such as increasing feelings of connectedness and managing stress related to academics. Interestingly, when examining the quantitative findings for this interview participant, her quantitative results are inconsistent with the experiences she described completing the WRC, but consistent with the model results. Her quantitative results showed she experienced greater decreases in subjective wellbeing and a non-significant increase in psychopathology.

Another participant described her experience as a first-generation college student to have both a negative and positive, but overall more positive, impact on her mental health more generally. She described how being a first-generation college student posed challenges related to difficulties in navigating the college experience, but also yielded a strong sense of community and connection with other first-generation college students, which she reported had a positive on her mental health.

Campus Living Status. Both quantitative and qualitative findings provide insight into the relationship between students' campus living status, the WRC, and mental health. Quantitative findings showed students who lived on campus had significantly greater decreases in psychopathology as compared to students who lived off campus. This finding is consistent with one participant's experience in which she leveraged the WRC skills to help her manage challenges related to on-campus living. However, this finding is inconsistent with another participant's experience with living on campus, which he described to be isolating as he was living alone. Quantitative findings also indicated transfer student and non-female students had greater declines in psychopathology if they were also living on campus. No transfer students were included in the qualitative strand and thus comparisons cannot be inferred. However, the interaction between gender, campus living, and psychopathology is inconsistent with the qualitative findings described above in which the female-identifying student described benefits of the WRC and living on campus whereas the male-identifying student described negative experiences to his mental health of both the WRC and living on campus. None of the participants in the qualitative strand of the study alluded to the interactions found between WRC lecture attendance, on-campus living, and changes in student mental health.

Chapter 5: Discussion

This study sought to examine the impact of the Wellness and Resilience Course (WRC) on student mental health when delivered at a large, universal scale to a diverse body of undergraduate students. Furthermore, this study sought to examine whether the impact on student mental health differed depending on the course delivery format (in-person versus virtual) in which they completed the WRC as well as whether student-level factors influenced students' changes in mental health after completing the WRC. Quantitative methods were used to examine the extent of students' mental health changes after completing the WRC and the extent to which class format and student-level factors predicted changes in student mental health. Qualitative methods were used to examine student experiences and perspectives completing the WRC, completing the course in a virtual or in-person format, how the WRC influenced their mental health, and how their identity shaped their experience in the WRC and mental health. Finally, through merging the quantitative and qualitative findings, this study sought to understand student changes in mental health after completing the WRC, how course-level and student-level factors influenced these changes, and why changes did or did not occur.

Discussion of Quantitative Results

Quantitative analyses were used to explore research questions one through three, which included examining the extent of the changes in students' mental health after completing the WRC (RQ1) and the extent to which class format (RQ2) and student-level factors (RQ3) predicted changes in student mental health. Quantitative results of the present study are summarized, used to compare the results to the hypotheses, and answer the research questions below.

Research Question 1: Student Changes in Mental Health. Overall, the quantitative analyses revealed no significant change in student mental health after completing the WRC, for both subjective wellbeing and psychopathology. It was hypothesized students' mental health would significantly change following the completion of the WRC. The hypothesis was not supported by the results of this study. While overall changes in student mental health were non-significant, the quantitative analyses revealed a trend towards a significant increase in students' subjective wellbeing after completing the WRC.

The absence of significant changes in student mental health is inconsistent with prior literature examining the effectiveness of the WRC when delivered at a smaller scale ($N = 24$; Chugani et al., 2023). Specifically, Chugani et al. (2023) found significant increases in student life satisfaction in their study whereas no significant differences were found in the present study. However, given the near significant trending increase in life satisfaction, it is possible that class size influenced the change in student life satisfaction. The inconsistencies in findings suggest a need to further explore whether implementation scale may impact the effectiveness of the WRC, particularly in examining its effectiveness as a universal curriculum.

While changes in subjective wellbeing of this study are inconsistent with Chugani et al.'s (2023) findings, psychopathology outcomes shown in the present study are consistent with those found in Chugani et al.'s (2023) study. Chugani et al. (2023) found no significant changes in student levels of anxiety, depression, and stress as measured by the Depression, Anxiety, and Stress Scale (DASS-21). While Chugani et al. (2023) did not find significant changes in levels of psychopathology, their study revealed improvements in students' resilience and ability to regulate and cope with distress, which would be expected to correlate with reduced psychopathology. These results indicate it is possible that the WRC improves student resilience

(not directly measured quantitatively in the present study), but does not reduce overall levels of psychopathology. These conflicting results also indicate a need to further assess the reliability of scales used to accurately capture changes in college student mental health. Given student mental health, psychopathology, and resilience are interconnected and multifaceted in nature, it is possible these complexities were not captured using the scales in the present study. More research is needed to better understand the relationship between the WRC and student mental health, psychopathology, and resilience.

While overall changes in student mental health were non-significant, regression results revealed a possible dosage effect of WRC class attendance and changes in student mental health. Specifically, students that attended all 10 lectures throughout the WRC were predicted to have significantly greater increases in subjective wellbeing after completing the WRC as compared to students who were absent from one or more lectures. These results highlight the importance of attendance to the WRC lectures, particularly as they indicate students experience greater increases in subjective wellbeing when doing so. Interactions found within the quantitative results also indicated the dosage effect, of both WRC lecture and quiz section attendance, may differ depending on certain student sociodemographic factors. This nuanced relationship between WRC attendance and student mental health is further explored under Research Question 3 below.

Research Question 2: Mental Health Changes by Class Format. It was hypothesized that no significant difference in student mental health changes would be found across students who completed the course in the virtual versus in-person course format. This hypothesis was confirmed as quantitative analyses revealed no significant differences in changes in student mental health between students who completed the course in the in-person versus virtual format. This indicates that the delivery format in which students completed the course (virtual vs. in-

person) did not influence the change in their mental health after completing the WRC. This is consistent with prior literature that showed online mental health treatment interventions to be effective in improving college student mental health (Davis et al., 2024; Dunbar et al., 2018; Kodish et al., 2022). These findings are good news for practitioners who deliver the WRC and students who enroll in the WRC, knowing that student changes in mental health will not be impacted by whether they completed the WRC in a virtual or in-person format.

Interestingly, Kodish et al. (2022) found poor treatment adherence in their study examining online mental health interventions; whereas in the present study, there were no significant differences found between WRC attendance and student mental health outcomes across course format. While different from the findings in Kodish et al.'s (2022) study, this is good news for practitioners wanting to offer the course in a virtual format as results suggest offering the WRC in an online/virtual format does not significantly impact student attendance/adherence to the course. While student racial demographics were not able to be examined in this study, Kodish et al. (2022) also found that online mental health interventions mitigated racial discrepancies otherwise seen in in-person mental health treatment interventions. This information suggests offering the WRC in an online/virtual format may reduce discrepancies in access to effective mental health services for students of certain racial and ethnic backgrounds and thereby provides support for the WRC as an equitable service to be delivered to a diverse body of undergraduate students. This is important to consider for future implementors of the WRC as college students of certain racial and ethnic backgrounds have previously been documented to be at a greater risk for mental health problems (Kodish et al., 2022; Lipson et al., 2018).

Overall, the consistency in change in student mental health, regardless of whether students completed the WRC in the in-person or virtual format, is good news for prospective students and practitioners alike. Offering the WRC in a virtual format provides many advantages for institutions, practitioners, and students. For example, providing the course virtually may reduce some resources required for the delivery of the WRC in the in-person format, such as classroom size and conflicting course schedules, for higher education institutions delivering the WRC. Given limited institutional resources have been documented as barriers to meeting the mental health needs of college students (Gallagher, 2009; Prince, 2015), these findings suggest offering the WRC in a virtual format is a promising part of the solution to reduce the gap between mental health needs of students and resources available. In addition to alleviating barriers for institutions, offering the WRC in a virtual format may alleviate barriers for students in accessing the WRC. For example, offering the WRC in a virtual format would likely reduce the time and cost of commuting to campus, which is promising given that time and cost have been previously documented as primary barriers to college students accessing mental health services (Eisenberg et al., 2023). Taken together, the findings of this study suggest the format in which the WRC is delivered does not influence changes on student mental health and is likely to expand access to the WRC for higher education institutions, practitioners, and students alike.

Research Question 3: Mental Health Changes by Student-Level Factors. Student-level demographic factors were assessed to explore factors that influenced changes in student mental health, given the WRC was delivered to a large and diverse body of students and that prior literature provides substantial evidence certain college students are more vulnerable to mental health challenges (Auerbach et al., 2018; Eisenberg et al., 2023, Lipson et al., 2018). It was hypothesized that student-level sociodemographic factors would not significantly predict

changes in student mental health after completing the WRC. Results showed that student mental health levels at pre-course, first-generation status, and campus living status significantly predicted change in student mental health outcomes; however, these variables also interacted with other predictor variables, suggesting a nuanced relationships exists between several student-level factors, the WRC, and student mental health. Overall, the results do not support the above hypothesis, and provide insight into the WRC's effectiveness when delivered at a large, universal scale to a diverse body of college students.

Pre-course Mental Health. Results showed that students with higher levels of psychopathology prior to completing the WRC had significantly greater decreases in psychopathology following the WRC. Similarly, students with lower levels of subjective wellbeing at the start of the WRC experienced greater increases subjective wellbeing following the completion of the WRC. These results are unsurprising, given they are mathematically anticipated. However, they remain important to consider as they indicate the WRC may be particularly helpful for students with poor mental health, as they experienced the greatest improvements in psychopathology and subjective wellbeing following the WRC.

Campus Living Status. Results revealed campus living status to be predictive of student changes in psychopathology, such that students who lived on campus had significantly greater decreases in psychopathology after completing the WRC as compared to students who lived off campus. While campus living status did not independently predict student changes in subjective wellbeing, living on campus interacted with lecture attendance. For students who had less than perfect WRC lecture attendance, students who lived on campus had significantly higher changes in subjective wellbeing as compared to students who lived off campus. Taken together, these results indicate campus living as a potential protective factor for student mental health and

highlight the importance of attending the WRC lectures, particularly for students who live off campus. These results are expected as prior literature comparing the mental health of students attending residential versus non-residential higher education institutions found higher rates of mental health problems among students attending non-residential campuses (Lipson et al., 2015). Given the present study was conducted at a public university with a predominantly non-residential campus (U.S. News & World Report, 2026), these findings are promising as they indicate the WRC could serve as a protective factor against mental health risks associated with students living off campus and attending other non-residential campus institutions. These results are important to consider for higher education institutions with non-residential campuses and how the WRC may help alleviate risks related to campus living and mental health problems.

First-generation Status. First-generation status was found to be predictive of change in student subjective wellbeing but not psychopathology after completing the WRC. Specifically, first-generation students were predicted to have greater decreases in subjective wellbeing as compared to non-first-generation students. However, the results also revealed a non-significant interaction trend providing further insight into the relationship between first-generation status, the WRC, and subjective wellbeing. First-generation students who were absent from one or more quiz sections experienced even greater decreases in subjective wellbeing after completing the course. Consistent results were found for changes in psychopathology; for students who were absent from one or more quiz sections, first-generation students experienced greater increases in psychopathology as compared to non-first-generation students. Taken together, these results indicate quiz section may serve as a potential protective factor against risks to subjective wellbeing for first-generation college students completing the WRC.

While the above findings are somewhat contradictory, prior literature examining first-generation college student mental health may help explain this relationship. A systematic review of 62 studies indicated social connection is a protective factor against mental health problems for first-generation college students, but that first-generation college students are at an increased risk for mental health problems when social and academic demands conflict (Rockwell & Kimmell, 2025). It is possible the WRC as an academic course could pose increased academic stress for first-generation students, causing negative impacts to their overall subjective wellbeing. However, it is also possible that the inherent social nature of the WRC quiz section serves as a protective factor for mental health otherwise caused by academic demands. That said, given the non-significance of the interactions, this is an area that should be further explored in future research to better understand the relationship between WRC quiz section attendance and first-generation status, particularly as first-generation students have been shown to have poorer overall life satisfaction (Jenkins et al., 2013).

Female Status. Regarding female status, regression results showed interactions between female status, pre-course levels of subjective wellbeing, lecture attendance, and quiz section attendance on changes in student mental health. First, for female students, those with lower levels of pre-course subjective wellbeing showed greater increases in subjective wellbeing following the completion of the WRC as compared to non-female-identifying students, and vice a versa. Given female students tend to be at greater risk for mental health problems, these findings are promising as the WRC could help improve mental health outcomes for female students vulnerable to mental health challenges (Duffy et al., 2019; Liu et al., 2019; Soria & Horgos, 2021).

Regression results also showed contradictory findings regarding the relationship between WRC lecture attendance, quiz section attendance, gender, and student mental health. For students who were absent from one or more lectures, female students had significantly greater increases in subjective wellbeing and psychopathology as compared to non-female-identifying students, which is unexpected given it would be expected for psychopathology to decrease as subjective wellbeing increases. Also surprising was that for students who were absent from one or more quiz sections, female students had greater decreases in psychopathology as compared to non-female students. Qualitative findings indicated the WRC's flexibility to miss a class under extenuating circumstances helped alleviate stress for students, which may explain the quantitative findings related to female status and WRC attendance.

Figures 6 and 10 further break down the relationship between pre-course levels of mental health, gender, and WRC class attendance. The figures indicate female students with higher levels of mental health problems (low subjective wellbeing and/or high psychopathology) at the start of the WRC consistently showed improvements in mental health after completing the WRC, regardless of class attendance, indicating female students with poor mental health are likely to benefit from the WRC. However, female students with high subjective wellbeing and/or low psychopathology at the start of the WRC, showed inconsistent results, with some showing worse mental health indices after completing the WRC. Given these conflicting results, the interaction between gender and class attendance and its' impact on student mental should be further explored, particularly given female and non-gender-binary students are at a higher risk for mental health problems (Auerbach et al., 2018; Duffy et al., 2019; Liu et al., 2019; Soria & Horgos, 2021).

Transfer Status. Results showed transfer students with higher levels of subjective wellbeing prior to completing the WRC had significantly greater increases in subjective wellbeing following the WRC as compared to non-transfer students. These findings suggest the WRC could be particularly beneficial for supporting the mental health of transfer students as they transition to a new university to help enhance levels of subjective wellbeing, given transfer students are at greater risk for mental health problems as compared to non-transfer students (Liu et al., 2019; Soria & Horgos, 2021). Results also showed that transfer students who were absent from one or more lectures had a significantly greater decreases in life satisfaction after completing the WRC as compared to non-transfer-students. These results highlight the importance of lecture attendance for transfer students. Finally, results showed a trend for transfer students who lived on campus having greater decreases in psychopathology after completing the WRC as compared to non-transfer students, suggesting living on campus and completing the WRC could be exponentially beneficial to transfer students.

Discussion of Qualitative Results

Eight participants were interviewed to gain insight into their perspectives of and experiences in completing the WRC, the format of the WRC, and how their identity and the WRC influenced their experiences and mental health. While many consistencies were found across participant experiences and perspectives, responses were also variable across and, at times, within participants. The qualitative data yielded helpful information and insights into the effectiveness of the WRC in improving college student mental health and how various factors may influence this relationship. These data are important to consider for implementors of the WRC as they aim to improve mental health outcomes for college students through a multi-tiered system of support.

Research Questions 4: Student Experiences and Perspectives of the WRC. Overall, all but one of the eight participants who were interviewed described their overall experience completing the WRC to be positive. Participants used words such as calm, beneficial, helpful, fun, supportive, and mindful to describe their overall perspective and/or experience completing the WRC. Further, many of the participants described the course as having a sense of “meaning” or value surrounding its benefit and influence towards students. Finally, many students also commented on a change in perspective throughout completing the WRC in that they got more benefit from the course than they had initially anticipated when they enrolled in the course.

In describing their perspectives and experiences, many of the participants shared perspectives of and/or experiences related to specific elements of the course structure, including course design, assignments, classes, and delivery of the course content. All participants described both positive and negative elements of the WRC structure and delivery. Elements of the course structure and delivery students enjoyed or found beneficial to their learning included the weekly structure and flexibility, the logical, clear, and organized delivery of the course material, skill-based activities practiced through in-class and homework assignments, and interactions with their classmates. Elements participants found to be detrimental to their learning and/or unenjoyable included certain homework assignments and the length of the lecture, and some found the delivery of the course content to be confusing. Overall, the perspectives and experiences the participants shared about the WRC were often positive in sentiment, noting experiences of having enjoyed these elements and/or how the WRC was beneficial to their learning of the course content and mental health.

The majority of the participants perspectives and experiences in completing the WRC were consistent with what is expected, given the course’s purpose and design. The WRC was

designed as a universal, tier-one mental health intervention and includes evidence-based strategies designed to improve student mental health (Mazza & Lally, 2017). Many of the participants described getting a sense of meaning, value, help, or benefit from the WRC. For example, many of the participants described ways in which they leveraged skills taught within the WRC to improve their mental health, such as gratitude to increase positive emotions and life satisfaction, interpersonal effective skills to manage interpersonal challenges, and emotion regulation skills to manage stress, challenging emotions, and difficult situations. Many of the participants also described positive experiences in the WRC that may indirectly serve as benefits to student mental health. For example, a few participants described positive interactions and connections among their classmates, including one participant who found her connections with her quiz section classmates helped alleviate feelings of loneliness and increase her sense of connectedness to others. Other students described the weekly lecture and the week-to-week structure as positive experiences.

Surprisingly, one participant described many negative experiences with the WRC, noting the weekly quiz section and the demand of the assignments to be detrimental to his emotions and mental health. He described how the external challenges he was experiencing, including mental health challenges, created barriers to his ability to access, engage, and benefit from the WRC content. This was unexpected as the WRC is designed for students to learn and practice skills and strategies that are conducive to their mental health. However, this participant's experience was uniquely different from the other seven participants who participated in the qualitative strand of this study. Within MTSS, a universal, tier-one intervention is designed to meet the needs of approximately 80% of students, with 20% of students needing more targeted support (Brown-Chidsey & Bickford, 2016). It is possible that the qualitative participants' experiences

align with these proportions and that Student A falls into the 20% of students in need of more targeted intervention.

The majority of participants' perspectives of and experiences with completing the WRC provide support for the continued implementation of the WRC. These perspectives and experiences described by the participants in this study could be helpful for continued recruitment and enrollment of students in the WRC. Additionally, these majority positive perspectives can encourage other higher education institutions to implement the WRC.

Research Questions 5: Perspectives of and Experiences with the WRC Format.

In summary, responses from participants suggest a general preference for completing the WRC in the in-person format over a virtual format, noting completing the course in-person increased participants' ability to engage with the WRC content, activities, and classmates. However, participant responses also indicated how completing the course in a virtual format does not impair their ability to learn the course material and could increase the accessibility of the course. Furthermore, participants shared how the physical class size impaired their learning and engagement in the course in the in-person format.

Taken together, these sentiments from participants regarding the WRC format suggest there are benefits to offering the course in both formats. This is good news for practitioners and higher institutions seeking to implement the WRC as offering the course in a virtual format likely reduces the resource demands for implementation, such as classroom space, size, and scheduling conflicts. Similarly, prospective WRC students could also benefit from classroom size and space restrictions as these were noted by participants as drawbacks to the in-person format. Offering the course in a virtual format could also increase the accessibility of the course, particularly for students of color as prior literature suggests online mental health treatment

options may help mitigate racial disparities in utilization of mental health services seen in in-person mental health services (Kodish et al., 2022). However, given the WRC has consistently reached enrollment capacity for both the in-person and virtual formats over the last several years, it is possible the WRC is both accessible and usable to students regardless of the format in which it is offered (Mazza & Lally, 2017).

Other potential benefits to offering the course in the virtual format include increasing the accessibility to students residing off campus by reducing the time and cost related to commuting to campus. Time and cost were cited as primary barriers by undergraduate students in accessing and utilizing mental health services (Eisenberg et al., 2023). As such, alleviating these barriers by offering the WRC in a virtual format could help increase the accessibility and usability of mental health services for undergraduate students. Additionally, since non-residential campuses tend to have higher rates of mental health problems as compared to residential campuses (Lipson et al., 2015), this data suggests offering the WRC through a virtual format may provide an opportunity to support the mental health of students living off campus and mitigate this gap for nonresidential campuses. However, while the virtual format offers several advantages, it is important practitioners consider the potential drawbacks of the virtual format on student engagement and interactions among classmates.

Research Question 6: The Influence of the WRC on Student Mental Health. The majority of the participants described the WRC to have an overall positive influence on their mental health. Students shared how the WRC improved their mental health through increasing their awareness of their mental health and enhancing their ability to regulate their emotions and shift their perspectives. For example, some participants describing how it expanded their “toolkit” for managing their emotions and wellbeing and others described specific skills they felt

contributed to their mental health. However, one participant described how this increased awareness amplified his mental health challenges, while simultaneously helping him realized the possibility to improve them. This student also described the WRC assignments as an added stressor and conflicted with the potential mental health benefits of the WRC.

Participants were specifically asked about how the WRC influenced their resilience as an element of mental health. The participants shared many instances in how the WRC helped them cultivate resilience in the face of challenges and in managing stress and other negative emotions. Participants described how they used specific skills they learned in the WRC to help manage challenges, conflict, stress, and difficult emotions. Participants often described how the WRC skills helped them navigate difficult situations related to interpersonal relationships, stress related to academics, and anxiety, among other personal hardships.

Participants were also asked about how the WRC influenced their subjective wellbeing as an element of mental health. Most of the participants described how the WRC helped them experience more positive emotions, happiness, and life satisfaction. All of the participants who described how the WRC had a positive influence on their subjective wellbeing also named the gratitude skill and/or practices throughout the WRC to have a positive influence on their subjective wellbeing.

Take together, the data provided by participants in the qualitative portion of this study suggest the WRC to have an overall positive influence on student mental health when delivered in a large format to a diverse body of students. These findings are exciting as this aligns with the purpose of the WRC to improve mental health outcomes for college students as well as prior quantitative research examining the impact of the WRC on changes in student mental health (Chugani et al., 2023; Mazza & Lally, 2017). Furthermore, the findings suggest the WRC

content and delivery of the content to be effective in improving student mental health by equipping them with tools and opportunities to cultivate resilience and subjective wellbeing. These findings are good news for both college students and practitioners alike in that the WRC appears to be an effective tool to help improve mental health outcomes for students, even when delivered in a large format. This also provides support for the WRC to be implemented as a possible tier-one intervention to help alleviate resources needed to address the mental health problems of college students and reduce risk for mental health problems in college students. Lastly, these findings provide opportunities for future implementors of the WRC to improve the effectiveness of the WRC by addressing the barriers and leveraging the facilitators described by the participants in this study.

Research Question 7: Student Identity, the WRC, and Mental Health. While some participants described how their identity did not influence their experience in the WRC or their mental health, others described experiences in which their identity influenced their experience in the WRC and/or their mental health. Students described how their identity influenced their mental health more generally as well as the relationship between their identity, mental health, and experience completing the WRC. The information yielded in the qualitative findings suggest it is important for WRC implementors to consider student identity when delivering the course to a diverse body of students to ensure the WRC equitably meets the mental health needs of students.

Some participants described experiences of how their cultural background either aligned or contrasted with the material taught within the WRC. Two participants highlighted how the WRC material is rooted in Western culture and how that differed from their cultural upbringing. Given the diversity of the students enrolled in the WRC, such as the high proportion of

international students, it is important implementors of the WRC consider cultural resonance of the WRC material to ensure students can apply the WRC content in a meaningful way.

Participants also described how their own mental health while enrolled in the course influenced their experience in the WRC, such as how their prior knowledge of how to manage challenges related to mental health was conducive to their learning and engagement with the WRC course materials and how their mental health challenges made the WRC more meaningful to them. However, one participant described how his mental health challenges impaired his ability to comprehend and engage with the WRC. These data are important to consider in the WRC's effectiveness as a tier-one mental health intervention for undergraduate students and highlight the need for more targeted mental health services to be available for students in need of more indicated support, as is recommended with in a multi-tiered system of support (Brown-Chidsey & Bickford, 2016).

Regarding student identity and mental health more generally, a few students described how aspects of their identities influenced their mental health. Specifically, students named first-generation status and socioeconomic status to influence their mental health in both challenging and positive ways. For example, two students described challenges with being a first-generation college student and how finding connection and community helped alleviate these challenges and yield benefits to their mental health. This is consistent with prior literature that suggests socioeconomic status, stress, and other sociodemographic factors to be associated with increased risk for mental health problems and social connectedness as a protective factor for first-generation college students (Eisenberg et al., 2009; Jenkins et al., 2013; Karyotaki et al., 2020; Rockwell & Kimmell, 2025; Soria & Horgos, 2021).

A few participants described how the WRC influenced the relationship between their identity and their mental health. Some students described how the WRC helped them alleviate challenges and mental health difficulties related to their identities, such as first-generation status, income status, and immigration status. However, other participants described how the WRC did not provide them with the resources necessary to manage mental health challenges related to identity, such as disability status, intergenerational trauma, discrimination, and navigating college as an international student. This information highlights opportunities for the WRC to support students with identity factors associated with an increased risk for mental health problems. For example, the WRC can gather information on identity-related challenges the enrolled-students are experiencing and provide direct examples for how students can use skills taught within the WRC to support them in navigating stress, difficult emotions, and challenges associated with these identity-related experiences. The WRC can also help facilitate connection and community among students through WRC in-class discussions as both qualitative data from this study and prior literature suggest social connectedness is a protective factor against mental health problems (Dave et al., 2024; Rockwell & Kimmell, 2025; Soria & Horgos, 2021).

These data suggest both promises and opportunities for the WRC's ability to be delivered to a large and diverse body of college students. Some of the participants sentiments provide support for the WRC in its ability to resonate with a diverse body of students and even alleviate some challenges related to students holding identities associated with increased risk for mental health problems. These data also provide insight into ways the WRC could better meet the needs of a diverse body of students by equipping students with ways to manage challenges related to certain identity experiences.

Mixed-Methods Inferences

This study used a convergent mixed-methods design, combining quantitative and qualitative data to understand the relationship between WRC and undergraduate student mental health. Quantitative measures were used to assess what changes in mental health occurred for students after completing the WRC and qualitative methods were used to understand the relationship between the WRC and student mental health. Together, the quantitative and qualitative findings were used to validate the findings (through contrasts and comparisons), illustrate the quantitative findings, and understand the research problem in-depth. The integration of findings provided a richer, more nuanced understanding of the relationship between the WRC and undergraduate student mental health.

The WRC and Student Mental Health. Overall, comparison of the quantitative and qualitative findings indicated they were largely inconsistent; quantitative results showed no significant change in mental health, whereas qualitative findings suggested mostly positive impacts, with students reporting reduced stress and enhanced wellbeing. There are several reasons that may explain the inconsistencies found in the data. First, participants shared about a number of challenges they experienced outside of the WRC that negatively influenced their mental health throughout the quarter. For example, participants described having to navigate challenges related to academic stress, interpersonal stress, college living, and financial stress as contributing factors to negative emotions and mental health challenges. It is possible these other factors had a stronger influence on student mental health than the WRC, thus negating differences in the data reflecting how the WRC influences student mental health.

Second, it is possible that the ways in which participants in the qualitative strand described both positive and negative ways the WRC influenced their mental health were not uniquely reflected in the quantitative data. In this way, the positive and negative experiences

participants described in the WRC could “cancel out” the unique positive or negative effects to mental health of the WRC more broadly assessed in the quantitative strand. Third, it is possible that the sample of students who participated in the qualitative strand are not representative of the sample used in the quantitative strand and thus, the findings from the qualitative strand may not generalize to the larger population. Lastly, it is possible that the WRC positively influenced student mental health in the ways described by the participants in the qualitative strand, but not to the degree that would indicate significance in the quantitative findings.

While quantitative and qualitative findings appear to be largely inconsistent regarding how the WRC influences student mental health, the qualitative findings provide insight into student experiences and perspectives that may help explain the findings reflected in the quantitative data. Specifically, participants that were interviewed in the qualitative strand provided insight into barriers that inhibited their ability to leverage the WRC content to improve their mental health. Barriers the participants identified that inhibited their learning, engagement with, and application of the WRC included lack of skill understanding, lack of skill resonance, lack of necessity to use the skills, lack of transferability/applicability to real-life situations, the number of skills, and personal factors. In this way, barriers inhibiting student learning and engagement with the WRC as described by the qualitative findings may illustrate the lack of significance found in changes in student mental health in the quantitative findings.

While the quantitative and qualitative findings were inconsistent in how the WRC influenced overall student mental health and psychopathology, qualitative and quantitative findings were more aligned with respect to student changes in subjective wellbeing. Both quantitative and qualitative findings showed students experienced increases in their subjective wellbeing after completing the WRC. Together, these findings are exciting as they highlight the

WRC as a promising intervention for improving student subjective wellbeing as an essential component of overall student mental health (Suldo & Shaffer, 2008). Several students described how the gratitude and REFRESHERs skills increased their positive emotions and life satisfaction, key contributors of subjective wellbeing. These findings support the continued teaching and implementation of the WRC to improve student subjective wellbeing.

WRC Format and Student Mental Health. Regarding course-level factors, quantitative findings suggested the course format did not significantly affect student mental health outcomes, and qualitative findings indicated equal effects to learning, but differences in student experiences when completing the course in the virtual or in-person format, with greater engagement and peer interaction in the in-person format. Qualitative data suggest the course format may have indirect influence on student mental health, such as those related to interactions with their classmates, which was not uniquely assessed in the quantitative strand. Similarly, it is possible that the positive and negative experiences of each of the course formats “cancel” each other out and thus, are not uniquely represented in the quantitative findings. For example, while interview participants described how the in-person course format allowed for improved engagement with the course material and interactions with their classmates, they also described negative experiences related to the uncomfortable physical space of the classroom. Finally, it is also possible that the sentiment yielded from the qualitative findings that course format may impact students’ experiences in the WRC, but not their learning of the course material, explains the lack of difference between course formats and student mental health outcomes seen in the quantitative findings.

WRC Dosage and Student Mental Health. The quantitative findings showed a significant dosage effect of the WRC in that perfect lecture attendance was linked to improved

subjective wellbeing. Qualitative data suggested this may be due to several benefits and positive experiences within the WRC lecture named by participants including learning of the course material and opportunities for peer interaction, peer discussions, and skill-practice during the WRC lecture (e.g., in-class mindfulness practices). Given the evidence-base indicating the effectiveness of the skills taught within the WRC in improving subjective wellbeing (Chugani et al., 2023; Seligman, 2000; Walsh, 2011; Wong et al., 2016) as well as prior literature suggesting social connection as a protective factor against mental health problems (Dave et al., 2024; Soria & Horgos, 2021), it is possible that these experiences with the lecture as described in the qualitative strand may explain the difference seen in the quantitative data through direct (students learning and leveraging the WRC content to improve their mental health) and/or indirect (connecting with others in lecture, enhancing their knowledge and application of the WRC through peer discussions) means.

Quantitative data also showed lecture attendance to interact with student-level factors to influence subjective wellbeing outcomes, including living on campus, transfer status, and female status. Specifically, the data showed students who live off-campus, transfer students, and non-female students were likely to see greater yields in subjective wellbeing if they attended all WRC lectures. This data is exciting as it suggests the WRC may help improve mental health outcomes for transfer students and students who live off campus, who are more vulnerable to mental health problems (Jenkins et al., 2013; Lipson et al., 2015). While qualitative data did not directly explore these outcomes, participants provided insights that may help explain the interactions found in the quantitative data, such as learning, understanding, and practice of the skills taught within the WRC and peer interaction as described above. Altogether, the benefits of lecture attendance may be highlighted to prospective students to support WRC attendance and

enrollment in the WRC, particularly for transfer students and students living off-campus, and provides further support for the WRC as a way to improve student mental health for students attending non-residential campuses.

The interactions found between quiz section attendance and student-level factors on student changes in psychopathology were reflected in both the quantitative and qualitative findings, suggesting quiz section attendance may be beneficial to students holding certain identities. Quantitative data showed quiz section attendance to be particularly important for students who enrolled in the WRC with higher levels of psychopathology as perfect quiz section attendance was associated with a greater reduction in psychopathology for students with higher levels of psychopathology at the start of the course. As such, future WRC implementors should consider the potential opportunities and consequences of quiz section attendance for students with higher levels of psychopathology at the beginning of the course.

Both qualitative and quantitative findings suggest quiz section attendance may be particularly beneficial to first-generation college students. Consistent with prior literature, social connectedness has been found to be a protective factor for first-generation college students against other risk factors for poor mental health (Jenkins et al., 2013; Rockwell & Kimmell, 2025). Together, the data indicate the importance of creating opportunities for social interactions and connectedness in the WRC quiz sections, particularly for first-generation students.

Interestingly, less than perfect lecture and quiz section attendance was associated with greater improvements in mental health outcomes for female students. This is contrary to the experiences described by two female participants in the qualitative strand who described feelings of connectedness among their quiz section group members. However, qualitative findings also indicated that flexibility in attendance (e.g., being able to miss a class) was also perceived as

beneficial by some students, which could help explain the nuanced relationship between student mental health and WRC class attendance. Given female students are at increased risks for mental health problems (Auerbach et al., 2018; Duffy et al., 2019; Liu et al., 2019; Soria & Horgos, 2021), this is important for future WRC implementors to consider how to further support female students enrolled in the WRC and ensure its equitability.

Student-Level Factors, Student Mental Health, and the WRC. While variable, both quantitative and qualitative findings provided important insights into how the WRC may provide opportunities for supporting the mental health of students holding identities particularly vulnerable to mental health problems. These findings are important to consider to ensure the WRC can equitably meet the mental health needs of students when delivered to a large and diverse body of students. Overall, these findings suggest the need for further research into the relationship between the WRC and student identity particularly as students holding certain identities have been shown to be vulnerable to mental health problems (Lipson et al., 2018).

Pre-course Mental Health. Together, quantitative and qualitative findings suggest students with poor mental health at the beginning of the WRC experienced greater benefits to their mental health after completing the WRC which provides evidence for the effectiveness of the WRC as a tier-one intervention to improve college student mental health. This is largely supported by both the quantitative and qualitative findings in both significant interactions seen in the quantitative findings and experiences described by participants in the qualitative strand. However, given the one participant that described how his poor mental health impaired his ability to learn, engage, and benefit from the WRC, it is important for future implementors of the WRC to consider student mental health factors that may impair the effectiveness of the WRC and be prepared to connect these students to more indicated levels of mental health support.

Female Status. Prior literature consistently shows females students to be at increased risks for mental health problems (Auerbach et al., 2018; Duffy et al., 2019; Liu et al., 2019; Soria & Horgos, 2021). Quantitative data showed WRC attendance to be associated with poorer mental health outcomes for female students while qualitative data showed no difference. These findings are important for future implementors of the WRC to consider and for researchers to explore further to ensure the equitability of the WRC, given the increased risk of mental health problems for female students.

First-Generation Status. While quantitative data suggests first-generation students to experience greater decreases in subjective wellbeing following the completion of the WRC, this is inconsistent with the qualitative data. Qualitative findings provided important insight into how the WRC can support the mental health of first-generation college students. In particular, both first-generation students in the qualitative strand described how interpersonal connections were beneficial to their mental health. Furthermore, quantitative data supported this finding by indicating WRC class attendance to improve mental health outcomes for first-generation college students. These findings are important for future implementors of the WRC to consider to ensure the WRC is effective in meeting the mental health needs of first-generation college students.

Campus-Living Status. Quantitative findings showed students who lived on campus had significantly greater decreases in psychopathology as compared to students who lived off-campus and that attending all WRC lectures is particularly important to improved subjective wellbeing for students who live off campus. Together, this information suggests there is a relationship between student living, the WRC, and mental health. Specifically, it indicates the WRC is a beneficial intervention to students living both on and off-campus and future WRC implementors should highlight the importance of lecture attendance, particularly for students

living off-campus. Qualitative data provided insight into opportunities in how student living may influence student experiences in the WRC. For example, one participant described how she experienced enhance use, understanding, and benefit from the WRC content due to completing the WRC with her roommate and recommended all students enroll in the WRC with their roommate.

Transfer Status. While no transfer students participated in the qualitative strand of this study, quantitative findings suggest the WRC may be supportive of transfer students' mental health. These results highlighted the importance of lecture attendance for transfer students as transfer students who were absent from one or more lectures had greater decreases in subjective wellbeing after completing the WRC. Although no transfer students participated in the qualitative strand, the qualitative findings reported by other participants indicate the WRC may provide college students with opportunities for social interaction and connection as well as equip students with tools to manage challenges, which may be supportive for transfer students in managing the challenges indicated in previous literature (Jenkins et al., 2013; Rockwell & Kimel, 2025).

In summary, the findings suggest that the WRC's impact on student mental health is complex. While quantitative data showed limited overall effects, qualitative insights revealed meaningful perceived benefits, emphasizing the importance of considering student experiences and contextual factors when evaluating large-scale mental health interventions. Both quantitative and qualitative findings provide support for delivering the WRC in both virtual and in-person formats. Finally, the quantitative and qualitative findings indicate a nuanced relationship exists between student identity, mental health, and the WRC, and provide important implications for future implementors of the WRC to ensure it effectively and equitably serves large, diverse

bodies of students. The results further highlight the need for future research to better understand the relationship between the WRC and student mental health.

Implications

The purpose of this study was to investigate the impact of the WRC on student mental health when delivered at a large, universal scale to a diverse body of undergraduate students. In doing so, the present study also aimed to contribute to the literature on the effectiveness of improving student mental health through a universal, curriculum-based intervention, assess whether the WRC is an equitable and accessible mental health intervention for college students, and understand how the WRC impacts student mental health. Quantitative and qualitative findings, both separately and together, provided insight into how the WRC impacts student mental health and its effectiveness when delivered at a large scale to a diverse body of undergraduate students.

Overall, quantitative findings indicated no significant change in student mental health outcomes after students completed the WRC, however, there was a near significant trend for increases in student subjective wellbeing after completing the course. While quantitative findings indicated no significant differences, qualitative findings suggest the WRC to have a predominantly positive influence on student mental health, with participants describing many ways in which they used the WRC skills to cultivate both resilience and subjective wellbeing. Qualitative and quantitative findings also provided insight into the importance of WRC attendance to changes in student mental health. However, this is an area that should be further explored given the conflicting findings between WRC class attendance, student identity, and changes in student mental health. Taken together, these findings provide important insight into how the WRC influences student mental health when delivered in a large format, with

quantitative and qualitative findings yielding promising results for the WRC's influence in improving student levels of subjective wellbeing and qualitative findings yielding promising results for its' influence on cultivating student resilience in the face of mental health challenges.

Overall, the findings from this study also provide important insight into the WRC as an equitable and accessible mental health intervention for college students. Both quantitative and qualitative findings indicate delivering the WRC in a virtual format does not impact student learning of the WRC material or the relationship between the WRC and student mental health. These findings are exciting as the opportunity for the WRC to be delivered in a virtual format could increase accessibility of the course for college students without impacting the efficacy of the WRC to influence student mental health. With respect to the equitability of the WRC, qualitative and quantitative findings suggest there is a nuanced relationship between student-level factors that influence their experience in the WRC and their mental health. These findings are important for implementors of the WRC to consider as they provide opportunities for the WRC to provide mental health support for students that are particularly vulnerable to mental health problems, thus allowing the WRC to effectively meet the needs of college students when delivered to a large and diverse body of students.

Limitations

Like any study, the current study has several limitations, including low statistical power for Level 2 mean pretest-posttest change, potential for sampling selection bias, how mental health was measured, and potential confounds during the study period that may have reduced true pretest to posttest change. In the statistical analysis, Level 2 was limited to 10 quiz sections and power for detecting mean pretest-posttest change was low: only 62% for a large effect of $d = 0.80$ (assuming an alpha of .05, 2-tailed, and $df = 9$). Using simulation, power was found to be

much better for testing L2 predictor effects; assuming an ICC of .01, like the analysis results in this study, power for testing the difference between remote and in-person section class delivery was 68% for a small effect size of $d = 0.20$ and > 99% for a medium effect size (or larger) of $d = 0.50$. For testing L1 predictor effects, including cross-level interactions between quiz section type and student-level predictors, power was 82% even for small effect sizes of $d = 0.20$ (and > 99% for medium and large effect sizes). These stipulations indicate this study may not accurately detect overall changes in student mental health and more accurately detects group differences, such as across class types and quiz section.

Regarding sampling limitations, given the naturalistic setting in which the WRC was implemented, a viable control group to compare student changes in mental health with those who completed the WRC to those who did not complete the WRC was not able to be identified. This limits the ability to isolate the WRC as a variable for predicting changes in student mental health and thus the ability to understand the direct impact the WRC may have on student mental health quantitatively. While the qualitative strand aimed to mitigate this limitation, conclusions from the qualitative findings cannot be generalized to the larger population. Furthermore, sampling for both the quantitative and qualitative strands were not simple random samples and thus it is possible sampling biases may have influenced the results of this study for both the qualitative and quantitative strands. For example, it is possible that WRC students who elected to participate in this study were overall more engaged in the WRC than those who did not elect to participate in this study. Lastly, there was also a potential for clustering within the data that was not included in the study models due to insufficient sample size. Students in the WRC were grouped into small groups of five to seven students within their respective quiz sections. Qualitative findings in the study indicated possible influences of quiz section group on their mental health.

This was not examined in the quantitative strand of this study and thus may not have been accounted for as a possible influence to the relationship between the WRC and changes in student mental health.

Regarding assessment limitations, as indicated earlier, the results of the present study are somewhat inconsistent with prior studies examining changes in student mental health after completing the WRC (Chugani et al., 2023). Furthermore, mental health outcomes for student who completed the WRC indicated by the qualitative findings are primarily inconsistent with those yielded in the quantitative findings and vice versa. These inconsistencies invalidate some of the quantitative findings and suggest it is possible the quantitative measurement tools used in this study to measure student mental health, the SLSS and BSI-18, do not accurately reflect student changes in mental health.

Finally, given the naturalistic implementation of the WRC, the current study is subject to several confounding variables. First, it is possible the timeline of the data collection processes used in this study impacted the results of this study. Quantitative data was collected once at the beginning of the fall academic quarter and once at the end of the fall academic quarter. At the beginning of the quarter, many students are returning from a summer break in academics and/or are new to attending the university. It is unclear how these experiences impact student mental health at the start of the WRC. Additionally, at the end of the academic quarter, students were either in the middle of final examinations or had recently completed the final examinations for the quarter. It is possible stress related to final examinations could have influenced the quantitative data and/or qualitative data collected at the end of the quarter. In addition to timeline effects, qualitative findings of this study suggest external factors influence mental health outside of the WRC. Specifically, participants described how stressors, such as familial stress, financial

stress, stress related to living situations, interpersonal stress, immigration stress, and academic stress, negatively influenced their mental health outside of the WRC. While in some cases participants described how the WRC helped them manage negative emotions and stress related to these challenges, other participants described how the WRC did not alleviate mental health challenges related to these stressors. Furthermore, it is likely history effects could have impacted the outcomes of this study. During the time period in which this study took place, political tensions were rising both domestically and internationally, with several civil and international wars taking place, which may have impacted the mental health of participants in this study (Lindsay, 2025). Taken together, the present study is limited in its' ability to identify nuanced changes and relationships between the WRC and college student mental health.

Future Directions

This study provided insights and information that provide support for the continued implementation of the WRC as well as illuminated opportunities to enhance the WRC's effectiveness. Implementors of the WRC should also consider the potential barriers and facilitators participants described to learning the WRC content and using it to improve their mental health. For example, participants indicated facilitators that helped them to learn and use the WRC content to improve their mental health included the in-class skill practice activities and the WRC assignments, such as the weekly homework posts and diary cards. Future implementors should ensure students are given opportunities to practice the skills through the weekly in-class and at-home assignments as participants shared these activities were reported by participants to be conducive to their ability to apply the WRC skills and strategies outside of the context of the course. Future implementors of the WRC should also consider the barriers that participants reported impaired their ability to use the WRC content to improve their mental health, which

included lack of understanding of the WRC skills and or how to apply them to their life, lack of resonance with the skills, and lack of applicability or transferability to their lives outside of the WRC. Future implementors can work to address these barriers to enhance the effectiveness of the WRC in improving college student mental health.

Future implementors of the WRC should consider the findings of this study that illuminate the relationship between student-level factors, the WRC, and student mental health. For example, the findings indicated a relationship exists between student mental health at the beginning of the WRC, changes in mental health after completing the WRC, and their experience completing the WRC. While quantitative data suggest the WRC is likely to help alleviate risk for mental health problems for students with poorer mental health challenges at the start of the WRC, qualitative data suggest some students with higher level of mental health challenges may not be able to access and meaningfully utilize the WRC content. Thus, it is recommended the WRC connect students in need of additional mental health services to more targeted campus-based mental health services to ensure they are accessing the mental health support they need. WRC implementors may partner with other campus mental health services to ensure smooth and integrated tiered mental health services are accessible to their students. Aligned with best practice in MTSS, the WRC implementors should use systematic data collection, analyses, and monitoring practices to ensure effective and integrated mental health service delivery (Brown-Chidsey & Bickford, 2016).

It is recommended future implementors of the WRC consider the relationship between student identity, the WRC, and student mental health to ensure the WRC equitably meets the needs of students when delivered to a large and diverse body of students. For example, the findings showed a complex relationship between first-generation status, the WRC, and mental

health. Based on the findings, it is recommended future implementors create increased opportunities for social connectedness in lecture and quiz section for first-generation students as well as highlight how skills taught within the WRC can be leveraged to manage stress and challenges commonly experienced by first-generation college students, such as academic and financial stress (Rockwell & Kimmell, 2025). Beyond first-generation status, future implementors of the WRC should consider other student-level factors, including transfer status, gender, and cultural identity to ensure it is eliminating potential consequences of the WRC for these students and maximizing the benefits. For example, for female students, the data suggest increased flexibility with attendance may actually enhance mental health outcomes. On the other hand, the data suggest WRC class attendance is essential for transfer students completing the WRC to enhance benefits to their mental health. Lastly, qualitative data revealed insights into the relationship between student cultural identity, the WRC, and mental health. It is important to consider the cultural responsiveness of the WRC when delivered to a large and diverse body of students. In particular, it would likely be beneficial for the WRC to work with a cultural consultant to understand how the cultural roots of the WRC content and delivery may influence student experiences completing the WRC and potential benefits of their mental health to ensure cultural factors are not impairing the potential benefits of the WRC to student mental health for certain populations of students and enhance its equitability.

This study provided important insights into how the WRC influences student mental health when delivered to a large and diverse body of students and contributed to the literature on the efficacy of improving college student mental health through an equitable, curriculum-based, tier-one intervention. However, inconsistencies in the findings suggest more research is needed to better understand the relationship between the WRC and student mental health, the scalability

of the WRC, and its' equitability in serving a diverse body of students. Thus, it is recommended future research further explore the nuanced relationship between the WRC and student mental health. First, it is recommended future researchers explore effective measurement tools to measure student changes in mental health outcomes in diverse student populations, given mental health is a complex and multifaceted construct. Second, it is recommended student mental health be measured more frequently throughout the WRC to reduce the potential for timeline effects to influence the data. Third, it is recommended the scalability of the WRC be further assessed. For example, future researcher may implement the WRC at a variety of sizes and compare change in mental health outcome across the implementation size. In doing so, it is also recommended researchers attempt to identify a comparable control group to better understand the unique effect of the WRC on student mental health.

In addition to the above recommendations, it is also recommended future research further explore the relationship between the predictor variables and student mental health outcomes that were indicated in this study. First, the findings from the present study suggest on-campus living to uniquely predict change in student psychopathology and first-generation status to uniquely predict change in subjective wellbeing. Thus, it is recommended the impacts of on-campus living on student mental health outcomes be further investigated to better understand this relationship, particularly as prior research and the findings from this study suggest on-campus living is beneficial to student mental health (Lipson et al., 2018). It is also recommended first-generation student mental health be further explore, given the findings of this study suggest they may be at greater risk for mental health problems than non-first-generation students. The findings from this study also showed on-campus living, gender, transfer status, and first-generation status to interact with class attendance to impact change in student mental health outcomes. It is

recommended future research further understand these relationships to better understand how to support both attendance and student mental health. Overall, more research is needed to understand how these factors influence student mental health so that higher education institutions can better support students particularly vulnerable to mental health problems.

Conclusion

The findings of this study underscore the need for systematic, preventative approaches to address the growing mental health challenges faced by college students. While the WRC did not produce statistically significant reductions in overall psychopathology, evidence from both quantitative trends and qualitative accounts suggest meaningful improvements in students' subjective wellbeing and resilience. Notably, the course appeared particularly beneficial for students who started the course with poorer mental health, highlighting its potential as an early, preventative intervention within a broader system of support. These results reinforce the value of universal, curriculum-based mental health programs that equip students with practical coping skills while addressing gaps left by traditional, reactive service models.

Additionally, the study contributes important insights into the accessibility, equity, and implementation of the WRC. The WRC demonstrated equal effectiveness across virtual and in-person formats, highlighting its potential as an accessible intervention for both students and institutions alike. At the same time, findings emphasize the importance of considering student identity factors, attendance, and opportunities for social connection in optimizing mental health outcomes. Collectively, this study supports the integration of resource-efficient, skills-based mental health programming into higher education systems as a promising strategy to enhance student wellbeing, reduce disparities, and move toward a more sustainable and equitable model of mental health support.

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Table 1*Joint Display of Quantitative and Qualitative Data Collection Procedures*

Mixed-Methods Domains	Quantitative findings	Qualitative Questionnaire Questions
Subjective Wellbeing	SLSS Change Score	Can you describe how, if at all, the Wellness and Resilience Course (WRC) influenced your mental health? In what ways, if any, did the WRC have affect your sense of wellbeing (in other words, happiness or life satisfaction)?
Psychopathology	BSI-18 Change Score	Can you describe how, if at all, the Wellness and Resilience Course (WRC) influenced your mental health? In what ways, if any, did the WRC affect how you manage stress, challenges, or difficult emotions?
Student-level factors	Significant L1 predictor variables	Considering the WRC's teaching strategies, quiz section and lecture activities, discussion prompts, homework post prompts, course logistics, weekly mindfulness practices, or skills, strategies, practices and content taught... a. Were there any parts of the class that felt particularly relevant and helpful to your cultural, racial, or other personal experiences? b. Were there any parts of the class that felt particularly not relevant or not helpful to your cultural, racial, or other personal experiences? c. Are there aspects of your identity that you feel shaped your experience in the WRC or your mental health more generally? If so, would you be open to sharing more about how those aspects shaped your experience completing the WRC or your mental health more generally?
Course-level factors	Significant L2 predictor variables	How, if at all, did the course format (in-person or virtual) influence how you engaged with the material or applied what you learned? Have you experienced any challenges in accessing mental health resources as a college student? If so, did the WRC have any impact on those challenges?

Table 2*Participant Demographic Information*

Measure	<i>n</i>	%
<i>Race/Ethnicity</i>		
Asian or Southeast Asian	122	55
White or Caucasian	40	18
Other or Mixed-Race	33	15
Hispanic, Latino/a, or Spanish Origin	13	6
Black or African American	9	4
Native Hawaiian or Other Pacific Island	2	1
American Indian or Alaskan Native	1	<1
Middle Eastern or North African	1	<1
<i>Resident Status</i>		
In-state student (Washington)	119	54
Out-of-state student (within the United States)	46	21
International student with F-1 visa	56	25
<i>Transfer Status</i>		
Transfer Student	18	8
Non-transfer Student	203	92
<i>Funding Status</i>		
Personal/Family Fund	123	56
Government Funding	14	6
Student Loans	4	2
Scholarship	1	<1
Multiple Sources or Other	79	36
<i>First-Generation Status</i>		
First-Generation Student	75	34
Non-First-Generation Student	146	66
<i>Gender</i>		
Female	120	54
Male	96	43
Non-binary	2	1
Other, Prefer to Self-Describe	3	1

Note. *N* = 221 students (L1) within 10 quiz sections (L2). Gender was collapsed into 'Female' and 'Non-female-identifying' due to limited number of students identifying as 'Other' or 'Non-binary.' Students in quiz sections beginning with an 'A' completed the course in the in-person format and students in quiz sections beginning with a 'B' completed the course in the virtual format.

Table 3*Means, Standard Deviations, and Zero-Order Correlations*

Variable	<i>M</i>	<i>(SD)</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Subj. Wellbeing (SLSS, 1-6) Pre	4.19	(0.73)	--												
2. Subj. Wellbeing (SLSS, 1-6) Pst	4.25	(0.84)	.69	--											
3. Subj. Wellbeing (SLSS, 1-6) Chg	0.06	(0.63)	-.23	.55	--										
4. Psychopathology (BSI, 0-4) Pre	0.93	(0.75)	-.40	-.24	.14	--									
5. Psychopathology (BSI, 0-4) Pst	0.91	(0.76)	-.33	-.40	-.15	.56	--								
6. Psychopathology (BSI, 0-4) Chg	-0.02	(0.71)	.07	-.17	-.31	-.46	.48	--							
7. Virtual Class (1=yes)	0.39	(0.49)	.09	.06	-.02	-.01	-.05	-.05	--						
8. Any Lect Abs (1=yes)	0.46	(0.50)	-.02	-.12	-.13	.06	.08	.02	-.12	--					
9. Any Quiz Abs (1=yes)	0.43	(0.50)	-.07	-.08	-.03	.08	.16	.08	-.06	.42	--				
10. Live on Campus (1=yes)	0.41	(0.49)	.10	.05	-.06	.01	-.09	-.11	-.25	.00	-.08	--			
11. Transfer Status (1=yes)	0.08	(0.27)	-.03	-.07	-.06	-.02	.00	.03	.07	.03	.01	-.18	--		
12. First-Gen Status (1=yes)	0.34	(0.47)	-.04	-.14	-.14	.02	.07	.06	.00	-.06	.07	.03	-.07	--	
13. Female Status (1=yes)	0.54	(0.50)	.05	.08	.05	.15	.03	-.12	-.11	.00	-.04	.09	.01	.01	--

Note. *N* = 221 student (L1) within 10 quiz sections (L2). Categorical variables are dummy coded. Mean standard deviations are based on disaggregated data. Pearson's *r* reported for zero-order correlations' values in boldface indicate significance at the .05 level.

Table 4*Multilevel Linear Regression Model Results Predicting Subjective Wellbeing*

Parameter	Model 1: Main Effects					Model 2: Interactions				
	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>df</i>	<i>p</i>
1. Subj WB (SLSS, 1-6) Chg	0.07	0.05	1.32	9	0.219	0.09	0.05	1.8	11	.099
2. Pretest (CMC, Z)	-0.14	0.04	-3.56	212	<.001	-0.14	0.04	-3.49	211	<.001
3. Virtual Class (1=yes)	-0.01	0.05	-0.19	9	0.851	-0.03	0.05	-0.65	9	.534
4. Any Lect Abs (1=yes)	-0.09	0.05	-1.97	212	0.05	-0.10	0.05	-2.21	211	.028
5. Any Quiz Abs (1=yes)	0	0.05	0.05	212	0.96	0.06	0.05	1.27	211	.205
6. Live on Campus (1=yes)	-0.01	0.04	-0.28	212	0.777	-0.02	0.05	-0.40	211	.686
7. Transfer Status (1=yes)	-0.09	0.07	-1.24	212	0.217	-0.01	0.07	-0.13	212	0.899
8. First-Gen Status (1=yes)	-0.08	0.04	-1.79	212	0.075	-0.10	0.04	-2.40	210	0.017
9. Female Status (1=yes)	0.05	0.04	1.12	212	0.264	0.03	0.04	0.62	211	0.537
10. Pre X Class Virtual						-0.05	0.04	-1.1	213	0.272
11. Pre X Any Lect Abs						-0.04	0.05	-0.83	216	0.407
12. Pre X Any Quiz Abs						0.07	0.05	1.46	221	0.146
13. Pre X Live on Campus						0.01	0.04	0.15	219	0.879
14. Pre X Transfer						0.18	0.08	2.27	213	0.024
15. Pre X FirstGen						-0.04	0.04	-0.99	220	0.322
16. Pre X Female						-0.11	0.04	-2.58	221	0.011
17. Virtual X Any Lect Abs						0.01	0.05	0.31	211	0.759
18. Virtual X Any Quiz Abs						0.01	0.05	0.17	210	0.866
19. Virtual X Live on Campus						0.01	0.05	0.14	213	0.89
20. Virtual X Transfer						-0.01	0.07	-0.14	210	0.89
21. Virtual X FirstGen						-0.03	0.04	-0.62	211	0.537
22. Virtual X Female						0.01	0.04	0.17	211	0.866
23. Any Lect Abs X Any Quiz Abs						-0.03	0.05	-0.6	220	0.55
24. Any Lect Abs X Live on Campus						0.10	0.05	2.01	215	0.046
25. Any Lect Abs X Transfer						-0.20	0.09	-2.22	218	0.027
26. Any Lect Abs X FirstGen						-0.07	0.05	-1.36	218	0.174
27. Any Lect Abs X Female						0.10	0.05	1.99	220	0.048
28. Any Quiz Abs X Live on Campus						0.04	0.05	0.90	220	0.369
29. Any Quiz Abs X Transfer						0.13	0.08	1.53	217	0.128
30. Any Quiz Abs X FirstGen						-0.09	0.05	-1.83	220	0.069
31. Any Quiz Abs X Female						0.03	0.05	0.57	216	0.569
32. Live on Campus X Transfer						0.08	0.09	0.94	217	0.35
33. Live on Campus X FirstGen						0.03	0.05	0.69	219	0.488
34. Live on Campus X Female						0.04	0.04	0.80	220	0.426
35. Transfer X FirstGen						0.05	0.08	0.59	219	0.557
36. Transfer X Female						-0.05	0.07	-0.65	219	0.514
37. FirstGen X Female						-0.03	0.04	-0.6	218	0.549

Note. $N = 221$ students (L1) within 10 quiz sections (L2). Categorical variables are dummy coded. Means standard deviations based on disaggregated data. ICCs = Intraclass correlations based on variance component estimated using full maximum likelihood by R lme4. Pearson's r reported for zero-order correlations; values in boldface indicate significance at the .05 level.

Table 5*Multilevel Linear Regression Model Results Predicting Psychopathology*

Parameter	Model 1: Main Effects					Model 2: Interactions				
	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>Coeff</i>	<i>(SE)</i>	<i>T</i>	<i>df</i>	<i>p</i>
1. Psychopathology (BSI, 0-4) Chg	-0.04	(0.06)	-0.59	8	.569	-0.06	(0.07)	-0.91	10	.382
2. Pretest (CMC, Z)	-0.31	(0.04)	-7.56	211	<.001	-0.33	(0.04)	-7.75	211	<.001
3. Virtual Class (1=yes)	-0.03	(0.06)	-0.46	8	.657	0.00	(0.06)	-0.02	9	.986
4. Any Lect Abs (1=yes)	0.00	(0.05)	-0.01	211	.989	0.00	(0.05)	-0.06	212	.953
5. Any Quiz Abs (1=yes)	0.08	(0.05)	1.73	211	.085	0.06	(0.05)	1.14	212	.254
6. Live on Campus (1=yes)	-0.09	(0.04)	-2.08	211	.039	-0.10	(0.05)	-2.17	211	.031
7. Transfer Status (1=yes)	-0.02	(0.07)	-0.25	211	.802	-0.08	(0.08)	-1.10	211	.273
8. First-Gen Status (1=yes)	0.02	(0.04)	0.52	211	.606	0.02	(0.04)	0.49	211	.623
9. Female Status (1=yes)	-0.04	(0.04)	-0.84	211	.400	-0.02	(0.04)	-0.39	211	.695
10. Pre X Class Virtual						0.04	(0.04)	1.02	213	.308
11. Pre X Any Lect Abs						-0.09	(0.06)	-1.69	215	.093
12. Pre X Any Quiz Abs						0.15	(0.05)	2.90	221	.004
13. Pre X Live on Campus						-0.01	(0.05)	-0.28	218	.780
14. Pre X Transfer						0.03	(0.08)	0.42	214	.673
15. Pre X FirstGen						-0.02	(0.04)	-0.51	214	.609
16. Pre X Female						0.05	(0.04)	1.01	220	.312
17. Virtual X Any Lect Abs						0.02	(0.05)	0.43	212	.671
18. Virtual X Any Quiz Abs						-0.05	(0.05)	-1.02	211	.310
19. Virtual X Live on Campus						-0.02	(0.05)	-0.36	212	.716
20. Virtual X Transfer						0.06	(0.07)	0.82	211	.412
21. Virtual X FirstGen						0.03	(0.04)	0.60	211	.549
22. Virtual X Female						0.03	(0.04)	0.76	211	.449
23. Any Lect Abs X Any Quiz Abs						0.00	(0.05)	0.03	218	.978
24. Any Lect Abs X Live on Campus						0.02	(0.05)	0.47	213	.641
25. Any Lect Abs X Transfer						0.04	(0.10)	0.42	215	.672
26. Any Lect Abs X FirstGen						-0.04	(0.05)	-0.79	220	.433
27. Any Lect Abs X Female						0.11	(0.05)	2.13	218	.035
28. Any Quiz Abs X Live on Campus						-0.03	(0.05)	-0.57	221	.570
29. Any Quiz Abs X Transfer						-0.03	(0.09)	-0.34	216	.738
30. Any Quiz Abs X FirstGen						0.10	(0.05)	1.91	219	.057
31. Any Quiz Abs X Female						-0.12	(0.05)	-2.42	214	.016
32. Live on Campus X Transfer						-0.17	(0.09)	-1.85	215	.066
33. Live on Campus X FirstGen						-0.01	(0.05)	-0.26	216	.792
34. Live on Campus X Female						0.08	(0.05)	1.83	218	.069
35. Transfer X FirstGen						0.07	(0.08)	0.91	217	.363
36. Transfer X Female						-0.06	(0.08)	-0.83	217	.408
37. FirstGen X Female						-0.06	(0.05)	-1.18	216	.240

Note. *N* = 221 students (*L1*) within 10 quiz sections (*L2*). Categorical variables are dummy coded. Means standard deviations based on disaggregated data. ICCs = Intraclass correlations based on variance component estimated using full maximum likelihood by R lme4. Pearson's *r* reported for zero-order correlations; values in boldface indicate significance at the .05 level.

Table 6*Qualitative Results by Semantic Theme*

Research Question	Theme	Source Theme Count	Source Theme Count	Theme	Source Count
<i>Q4: Student Perspectives and Experiences of the WRC</i>	Overall Perspectives of and/or Experiences in the WRC	8	Overall Positive	*Meaning	5
				*Unexpected Benefit	4
	*Perspective of or Experience with the WRC Structure and Delivery	8	Overall Negative		1
			*WRC Structure		8
			*WRC Assignments		7
			*WRC Lecture		6
			*WRC Quiz Section		6
			*WRC Delivery		6
<i>RQ5: Student Experience Completing the Course Format</i>	In-person vs. Virtual	8	*Learning and Engagement		8
			*Social Interaction		3
			*Size and Space of Class		2
<i>Q6: The Influence of the WRC on Student Mental Health</i>	Positive Influence on Mental Health	7	*Expanded Toolkit		3
			*WRC Skills that Influenced Mental Health		2
	Negative Influence on Mental Health	1			
	WRC Influence to Resilience	8	*WRC skills Used to Cultivate Resilience		7
	WRC Influence to Wellbeing	7	*Positive Emotions		5
			*Life Satisfaction		7
	*Barriers (factors that limited the impact of the WRC on student mental health)	7	*Lack of Understanding		3
			*Lack of Resonance		4
			*Lack of Applicability/Transferability		5
	*Facilitators (factors that facilitated the impact of the WRC on student mental health)	5	*WRC In-class Activities		3
			*WRC Assignments		5
<i>Q7: Influence of Student Identity on WRC Experience and Mental Health</i>	Student Identity and the WRC	5	*Influence of Culture		3
			*Influence of Mental Health		2
	*Lack of Influence of Identity on WRC Experience	3			
	Student Identity and Mental Health	4			
	*Relationship Between Identity and WRC on Mental Health	3			

Note. Emergent themes denoted with an asterisk.

Table 7*Display Table of Quantitative Results for Qualitative Strand Participants*

Predictor Variable	Student A	Student B	Student C	Student D	Student E	Student F	Student G	Student H
Quiz Section	AE	AH	AD	AE	AF	AD	BC	AE
Z Pre-course average SLSS	-2.03	1.87	-0.53		-0.86	2.50	-1.43	
Z Pre-course average BSI	2.00	-1.09	0.15		1.00	-0.16	0.18	
Course Format	In-Person	In-Person	In-Person	In-Person	In-Person	In-Person	Virtual	In-Person
Lecture Absence	N	N	Y	Y	Y	Y	Y	Y
Quiz Section Absence	Y	N	Y	N	Y	Y	Y	Y
Transfer Status	N	N	N	N	N	N	N	N
Female Status	N	Y	Y	Y	Y	Y	N	Y
First-Generation Status	Y	Y	N		N	Y	Y	Y
Campus Living Status	On-campus	On-campus	On-campus	Off-campus	On-campus	On-campus	Off-campus	
Outcome Variable								
SLSS Change	-0.57	-0.43	0.86		0.29	-0.14	-0.43	
BSI Total Change	-0.17	0.11	-0.44		-0.39	-0.56	-0.22	

Note. Information presented in the table is taken from both qualitative and quantitative data strands.

Table 8*Joint Display Table of QUANT + QUAL Results*

Mixed-Methods Domains	Quantitative findings		Qualitative findings	Mixed-methods meta-inferences
Influence on Mental Health	Subjective Wellbeing	Psychopathology		
<i>Change in subjective wellbeing</i>	Non-significant trend in improved subjective wellbeing.	No significant change in psychopathology.	The majority of participants indicated the WRC positively influenced their mental health and helped them cultivate both resilience and subjective wellbeing.	Overall, the quantitative findings are inconsistent with the qualitative findings. The qualitative findings provide insight into illustrating quantitative findings. Qualitative findings are more consistent with the near-significant increase in subjective wellbeing.
Course-level Factors				
<i>Course Format</i>	No significant difference in changes in student mental health by whether students completed the course virtually or in-person.	No significant difference in changes in student mental health by whether students completed the course virtually or in-person.	Participants indicated a general preference for completing the course in-person, noting increased engagement with the course material and their classmates when completing the course in-person as compared to virtually. The participant who completed the course virtually indicated no impact on his learning of the WRC content. In-person learning and engagement was negatively impacted by the classroom size and space.	Overall, WRC course format did not appear to moderate the relationship between the WRC and student mental health as reflected in the quantitative findings. However, qualitative findings provide insight into how the WRC format can influence student experiences in the course.
<i>Lecture Absence</i>	Students with one or more lecture absences had greater decreases in subjective wellbeing compared to students who attended all lectures.	There was no significant difference in change in psychopathology for students who were absent from one or more lectures compared to students who attended all lectures.	Participants expressed mixed perspectives towards the WRC lecture. Participants reported the length of the lecture to negatively impact attention and learning. The majority of the participants found the delivery of the WRC content during lectures to be clear and beneficial. One participant noted	The qualitative findings are in some ways reflective of the quantitative findings in that interview participants described benefits related to attending the WRC lectures. However, interview participants also described the other experiences and perspectives of the WRC lecture that are not reflected in the quantitative findings.

			attendance to lecture to be important in order to improve mental health. Two participants reported appreciating the flexibility to miss lecture as necessary.	
<i>Quiz Section Absence</i>	There was no significant difference in change in subjective wellbeing for students who were absent from one or more quiz sections compared to students who attended all quiz sections.	There was no significant difference in change in psychopathology for students who were absent from one or more quiz sections compared to students who attended all quiz sections.	The majority of students provided positive sentiments towards the course quiz section, which included interactions with classmates and skill practice. One participant described a negative sentiment towards the quiz section, noting it felt "pandering."	The overall quantitative findings do not directly reflect the qualitative findings related to the unique impact of quiz section on student mental health. However, both qualitative and quantitative findings yield conclusions related to the nuanced relationship between quiz section attendance and student mental health.
Student-level Factors				
<i>Pre-course levels of mental health</i>	Students with lower levels of subjective wellbeing at the beginning of the WRC had significantly greater increases in subjective wellbeing compared to the average.	Students with higher levels of psychopathology at the beginning of the WRC had significantly greater decreases in psychopathology compared to the average.	More often, participants described experiences in which pre-course mental health challenges enhanced their ability to further improve their mental health through the WRC. Other students described ways that the WRC further helped them manage challenges related to mental health.	Both consistencies and inconsistencies were found across quantitative and qualitative findings. Both qualitative and quantitative findings suggest a meaningful relationship between student pre-course mental health and changes in mental health after completing the course.
	For students with higher levels of subjective wellbeing at the start of the WRC, transfer students had significantly greater increases in subjective wellbeing after completing the WRC as compared to non-transfer students.	For students with higher levels of psychopathology at the start of the WRC, students who were absent from one or more quiz sections had significantly greater increases in psychopathology as compared to students who attended all quiz sections.	One student's pre-course mental health problems impaired his ability to comprehend the course material and apply the course material in a meaningful way.	However, some participant experiences were consistent with the direction of change shown in the quantitative results while another participant's was not. Further, both quantitative and qualitative findings suggest a relationship between student pre-course levels of mental health, WRC class attendance, and change in mental health after completing the WRC.
	For students with higher levels of subjective wellbeing at the start of the WRC, female students had significantly greater decreases in subjective wellbeing after completing the WRC as compared to non-female students.	There was a non-significant trend such that, for students with higher levels of psychopathology at the start of the WRC, students who were absent from one or more lectures had		

		greater decreases in psychopathology as compared to students who attended lectures.		
<i>Transfer Status</i>	For students who were absent from one or more lectures, transfer students had significantly greater decreases in subjective wellbeing as compared to non-transfer students.	There was a non-significant trend such that for student who lived on campus, first-generation students had greater increases in psychopathology as compared to non-first-generations students.	None of the participants included in the qualitative strand identified as a transfer student.	Due to lack of qualitative findings regarding transfer status, it was not possible to integrate qualitative and quantitative findings. However, qualitative findings indicated the WRC may provide college students with opportunities for social interaction and connection as well as equip students with tools to manage challenges, which may be supportive for transfer students in managing the challenges indicated in previous literature.
<i>Female Status</i>	For students who were absent from one or more lectures, female students had significantly greater increases in subjective wellbeing as compared to non-female students.	For students who were absent from one or more lectures, female students had significantly greater increases in psychopathology as compared to non-female students. For students who were absent from one or more quiz sections, female students had significantly greater decreases in psychopathology as compared to non-female students.	The majority of participants did not indicate their gender influenced their experience in the WRC or mental health. However, two students commented that their cisgender identification supported the resonance of the WRC content. One student also noted her quiz section group to be of the same gender, which she believed helped them connect, but also limited perspective.	Qualitative and quantitative findings related to student gender identity and changes in student mental health after completing the WRC appear to be largely inconsistent and more research is needed to better understand this relationship.
<i>First-Generation Status</i>	First-generation students had significantly greater decreases in subjective wellbeing as compared to non-first-generation students.	There was a non-significant interaction trend found between quiz section absence and first-generation status. For students who were absent from one or more quiz sections, first-generation students had greater increases in psychopathology as compared to non-first-generation students.	Two students commented on how their status as first-generation student impacted their experience completing the WRC and mental health. One student expressed how the WRC helped her manage challenges and stress related to being a first-generation college student. Another student expressed how being a	Both consistencies and inconsistencies were found between qualitative and quantitative findings regarding the relationship between first-generation status, the WRC, and student mental health. Qualitative findings provide insight into possible ways first-generation students' mental health can be supported through the WRC

			first-generation college student impacted her mental health more generally in both positive (increased connection with other first-generation students) and negative ways (increased stress related to navigating college experiences).	and within higher education institutions.
<i>Campus Living Status</i>	For students who were absent from one or more lectures, students who lived-on campus had significantly greater increases in subjective wellbeing as compared to students who lived off-campus.	Students who lived on campus had significantly greater decreases in psychopathology as compared to students who lived off-campus. There was a non-significant interaction found between female status and campus living status. For students who lived on campus, female students had significantly greater increases in psychopathology than non-female students.	Only two participants who lived on campus commented on how their living setting influenced their experience completing the WRC and/or their mental health. One student described how she completed the WRC along with her roommate and the WRC helped her navigate challenges associated with living with a roommate and improved their relationship. This same student commented on how the WRC skills helped her navigate a particularly difficult experience that occurred in her on campus dorm. Another student commented on how the amount of time he spent alone in his dorm room on campus to negatively impact his mental health.	One participant's experience described in the qualitative findings is consistent with quantitative outcomes related to on-campus living and another participant's experience was inconsistent with the quantitative outcomes. More information is needed to understand the relationship between WRC lecture attendance, gender, on-campus living, and changes in student mental health. Taken together, multiple factors appear to influence the relationship between on-campus living, the WRC, and changes in student mental health.

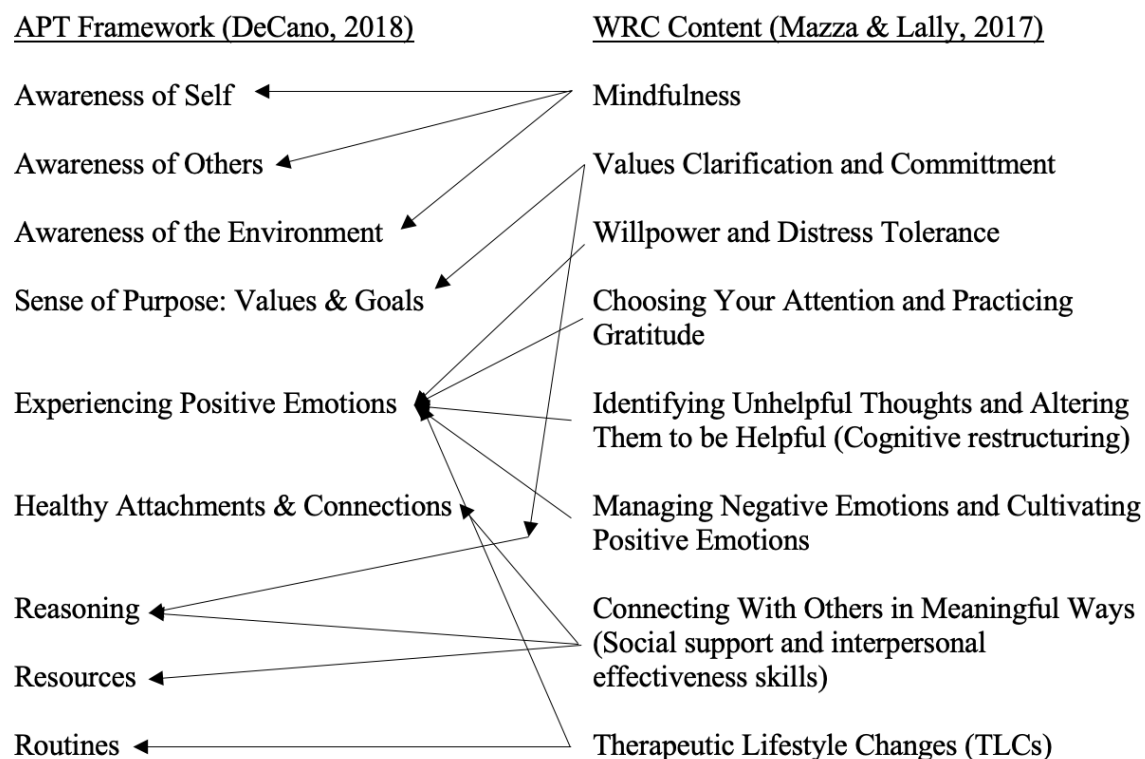
Figure 1*WRC Content Map onto APT Framework for Resilience*

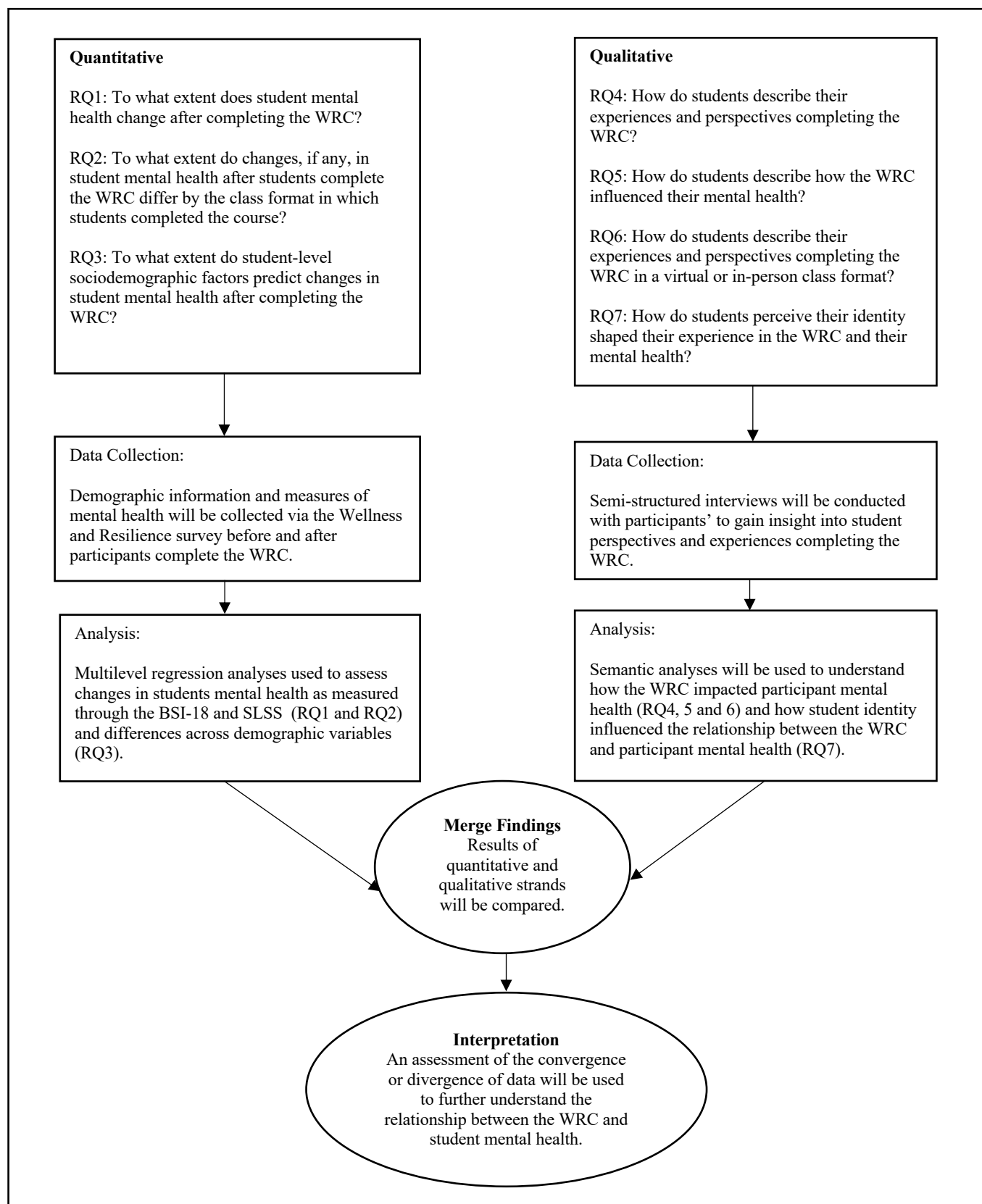
Figure 2*Convergent Mixed Methods Design (QUANT + QUAL)*

Figure 3

Interactions between Lecture and Quiz Section Absence and Living Status on SLSS Change

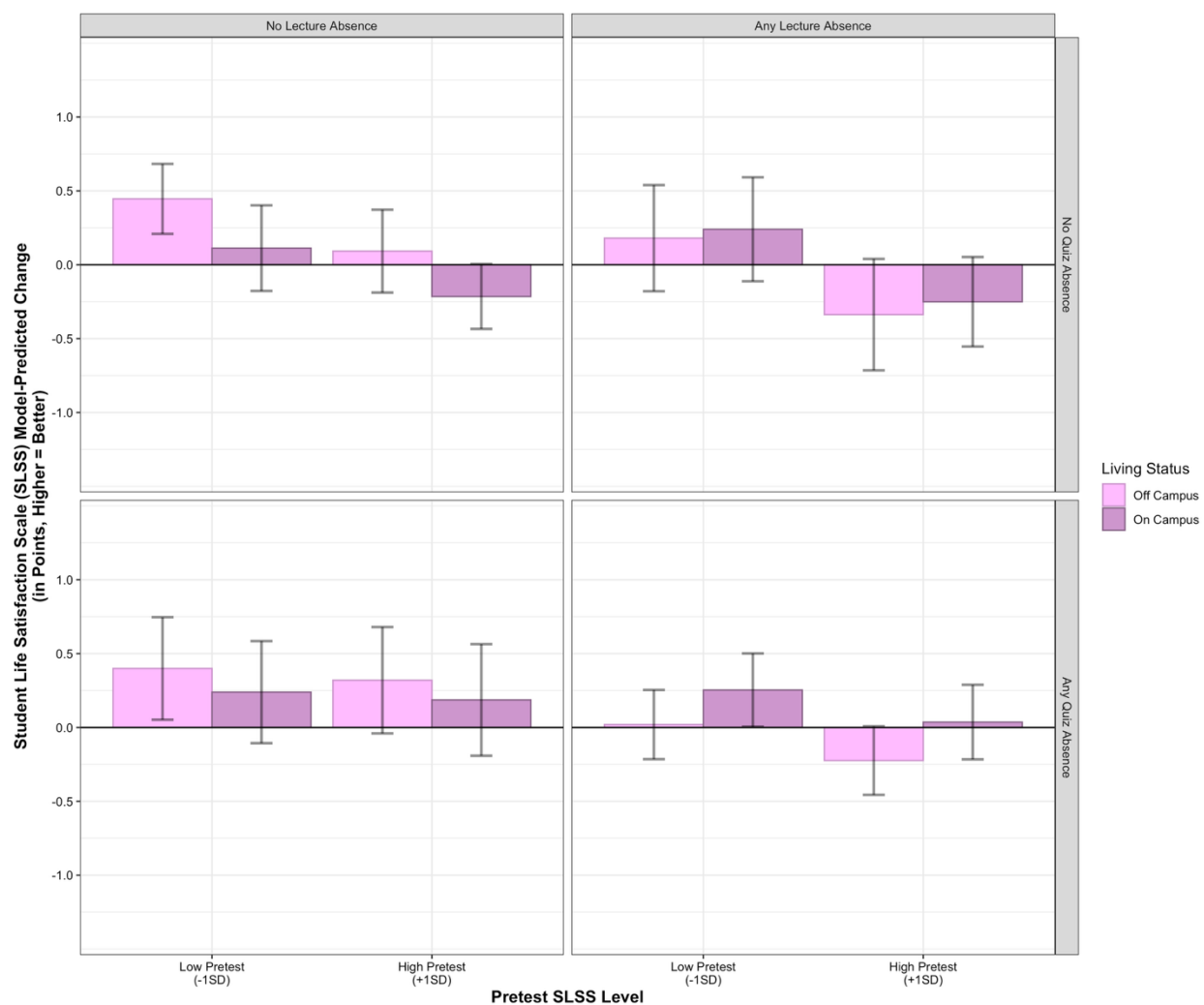


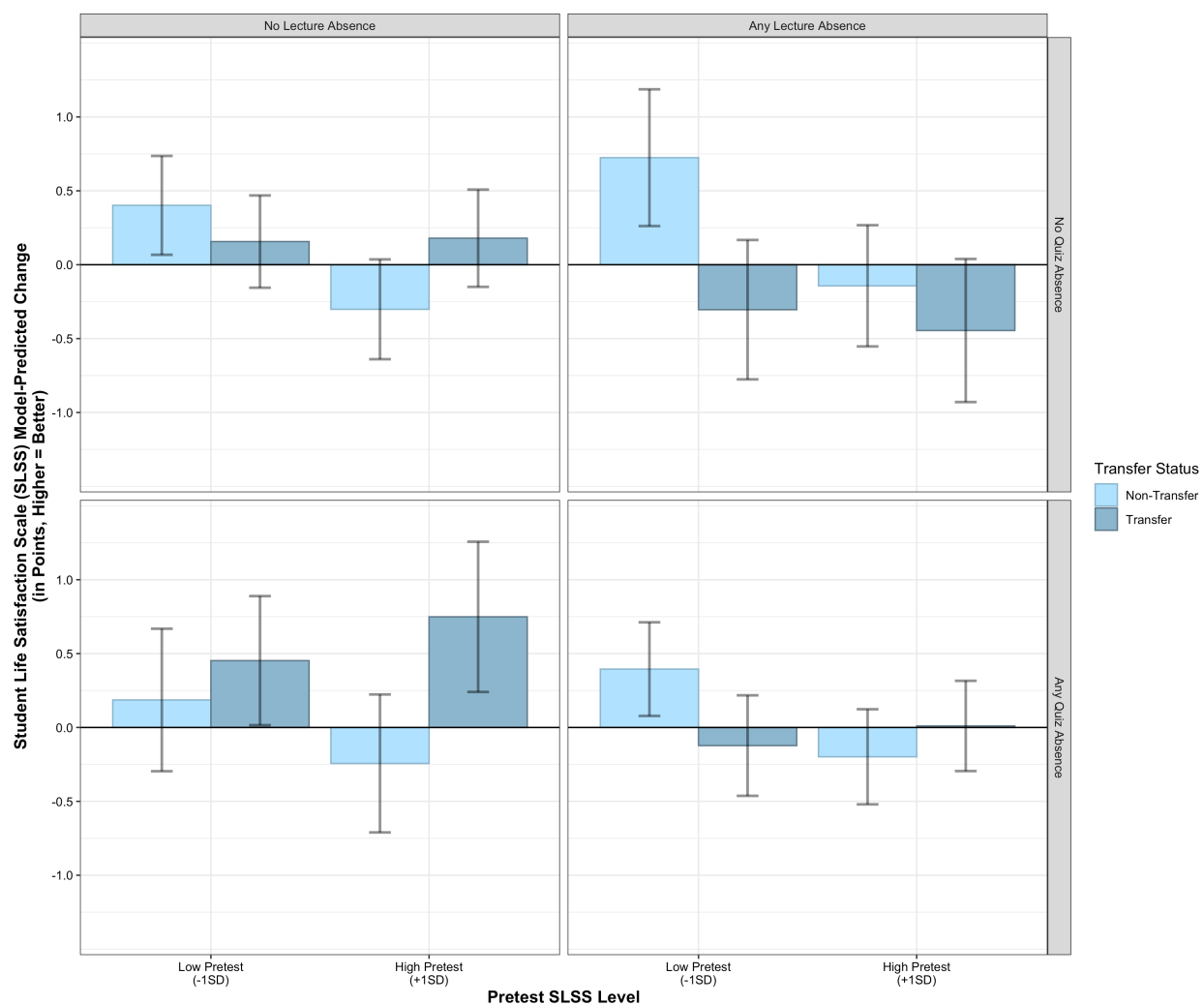
Figure 4*Interactions between Lecture and Quiz Section Absence and Transfer Status on SLSS Change*

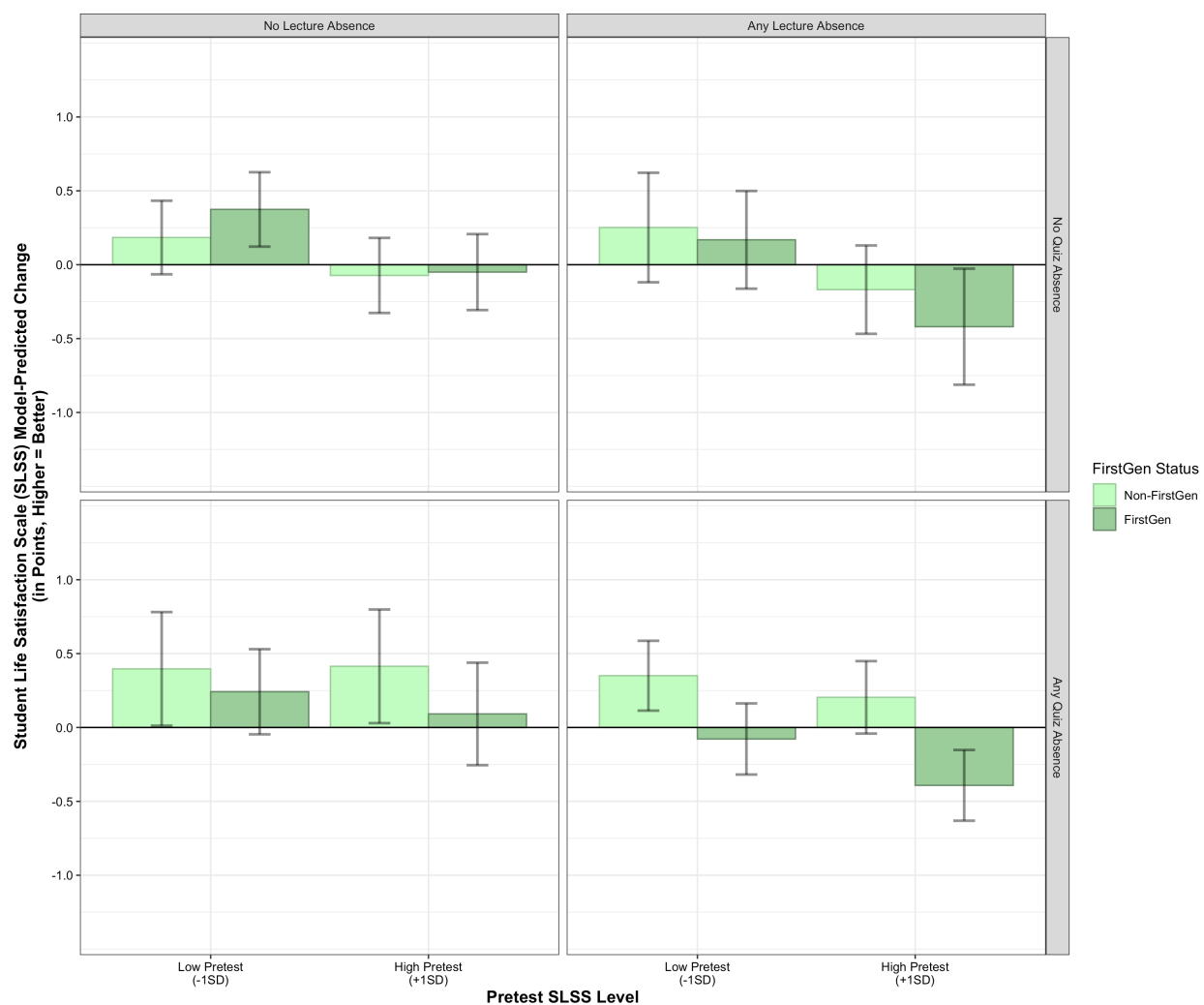
Figure 5*Interactions between Lecture and Quiz Section Absence and First-Gen Status on SLSS Change*

Figure 6

Interactions between Lecture and Quiz Section Absence and Female Status on SLSS Change

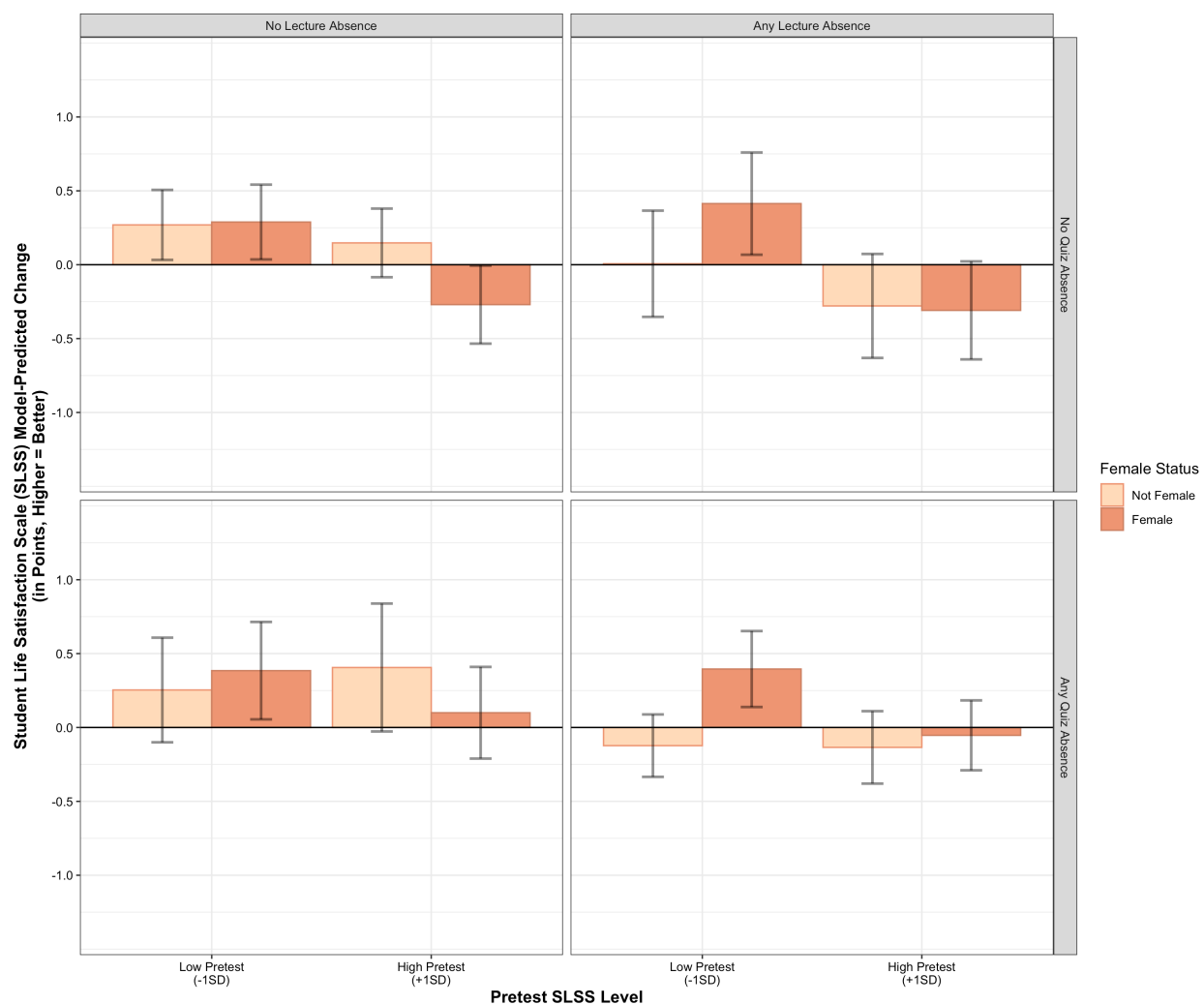


Figure 7

Interactions between Lecture and Quiz Section Absence and Living Status on BSI Change

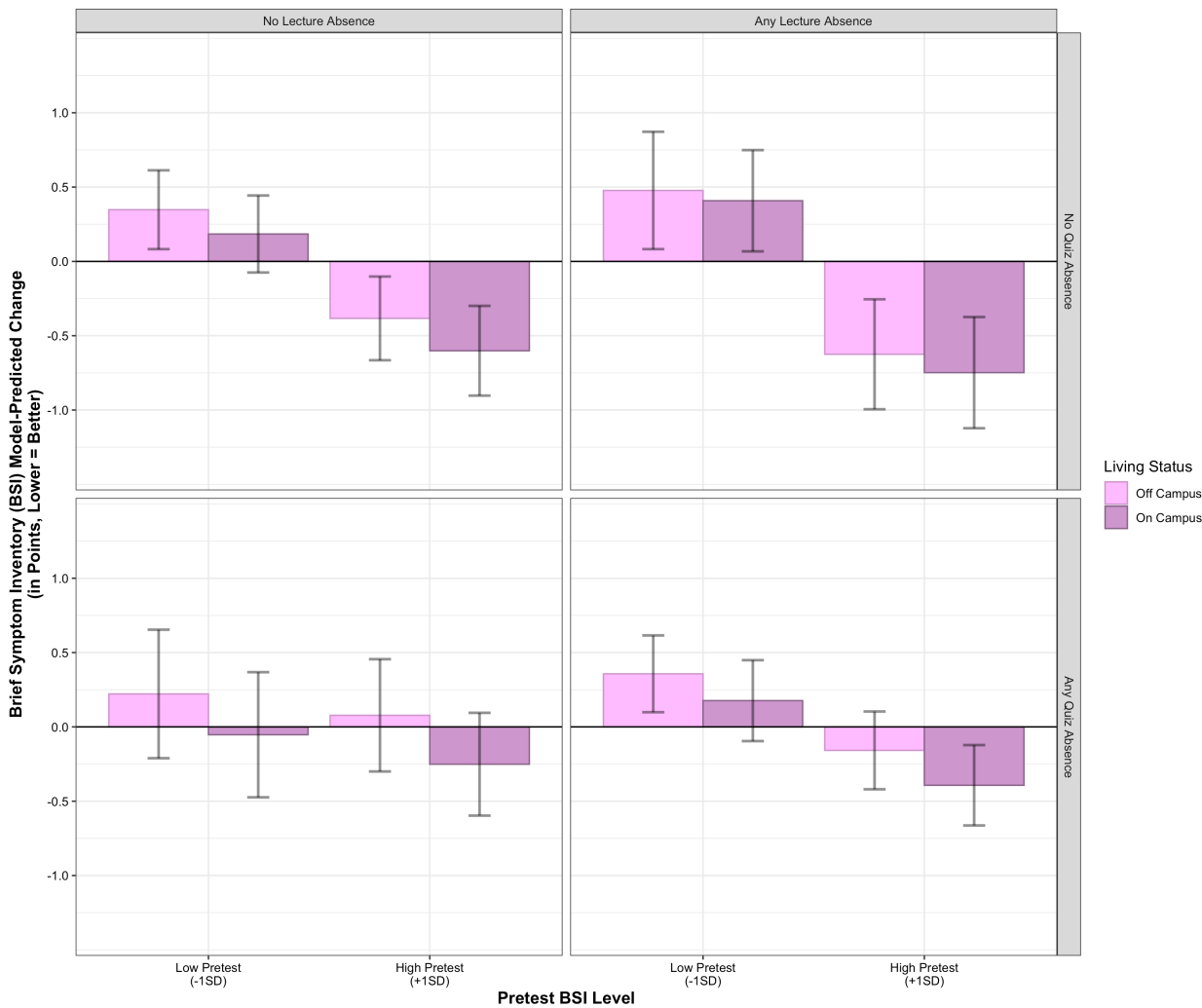


Figure 8

Interactions between Lecture and Quiz Section Absence and Transfer Status on BSI Change

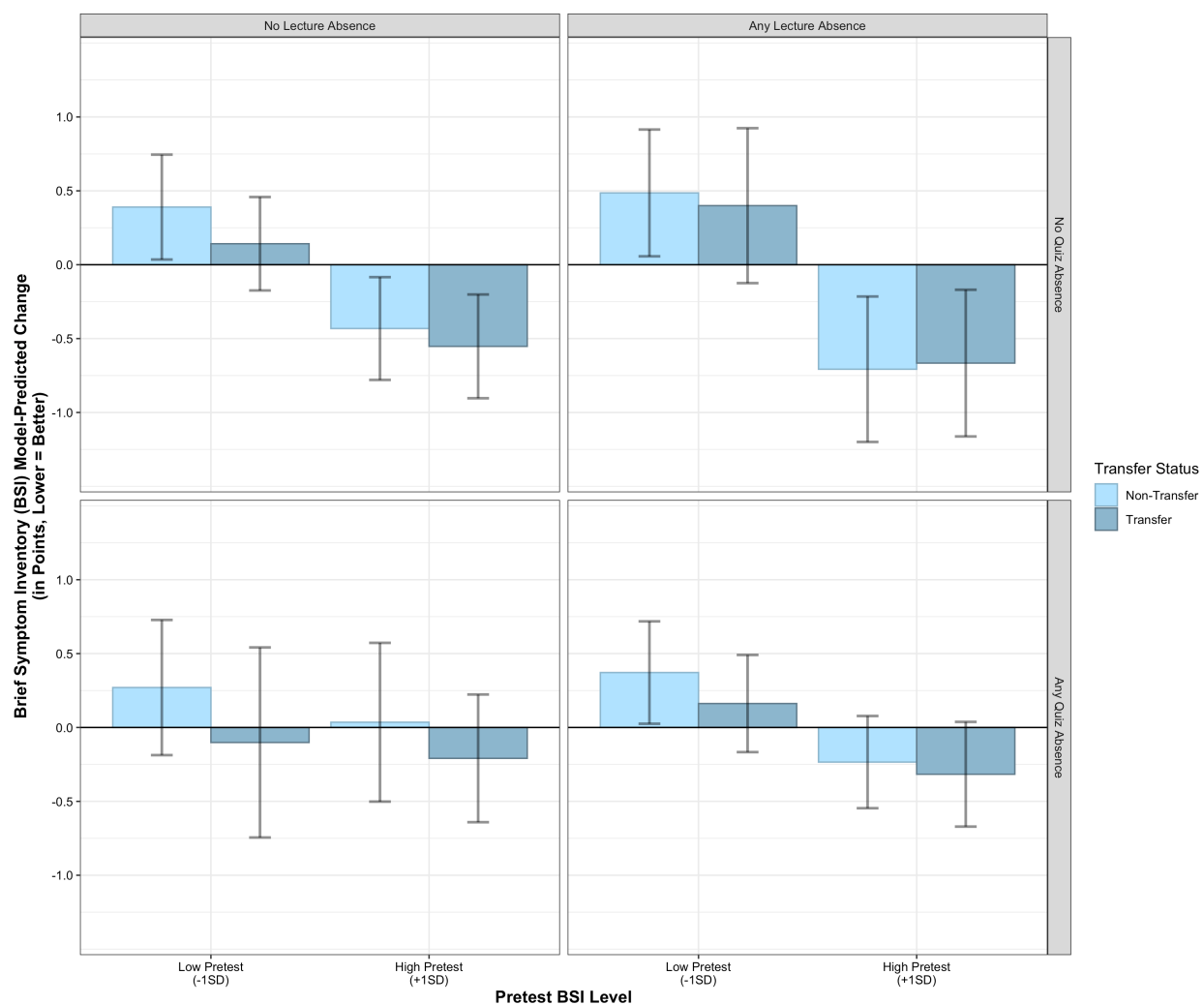


Figure 9

Interactions between Lecture and Quiz Section Absence and First-Gen Status on BSI Change

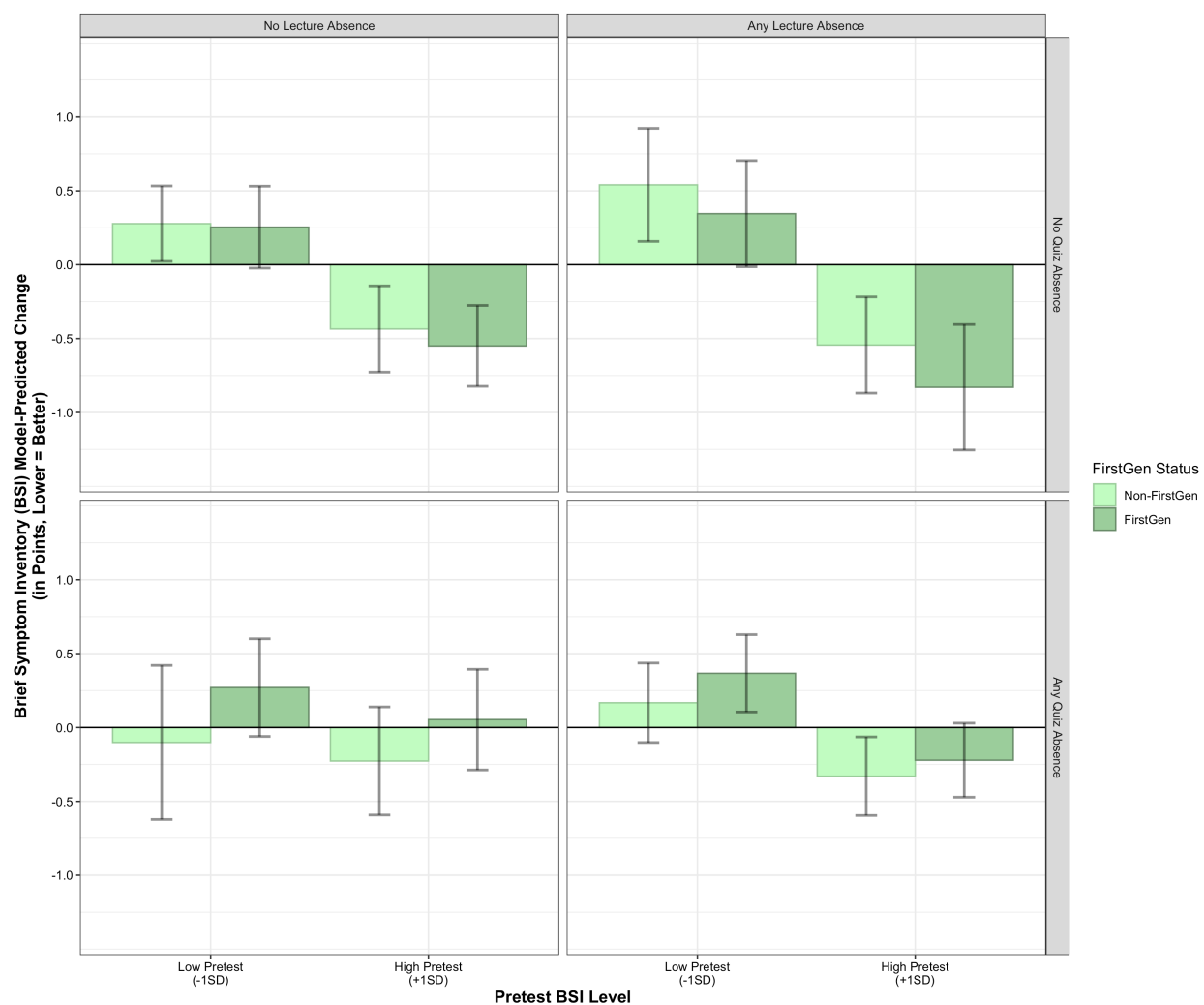


Figure 10

Interactions between Lecture and Quiz Section Absence and Female Status on BSI Change

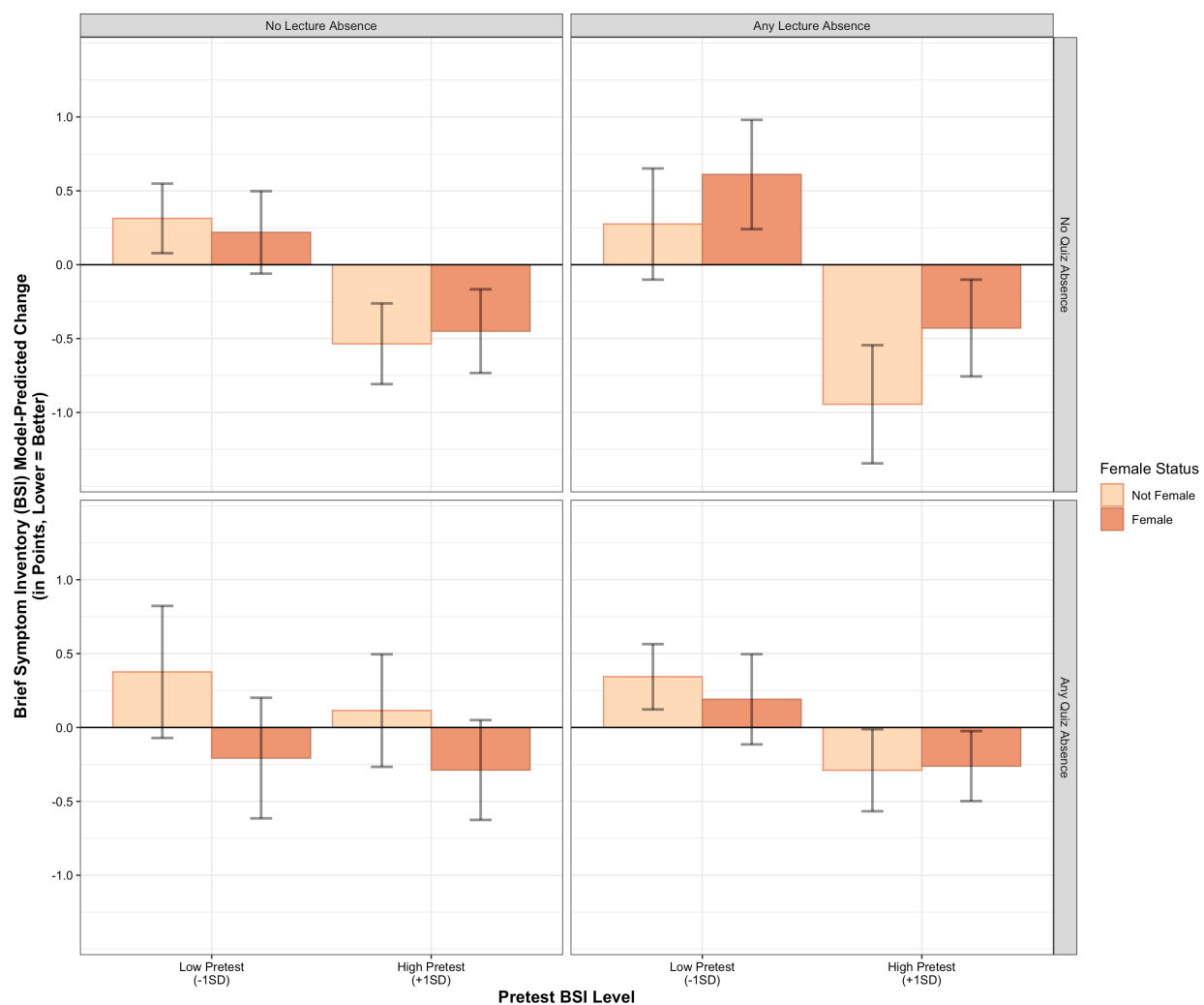


Figure 11

Interaction between Living Status and Transfer Status on BSI Change

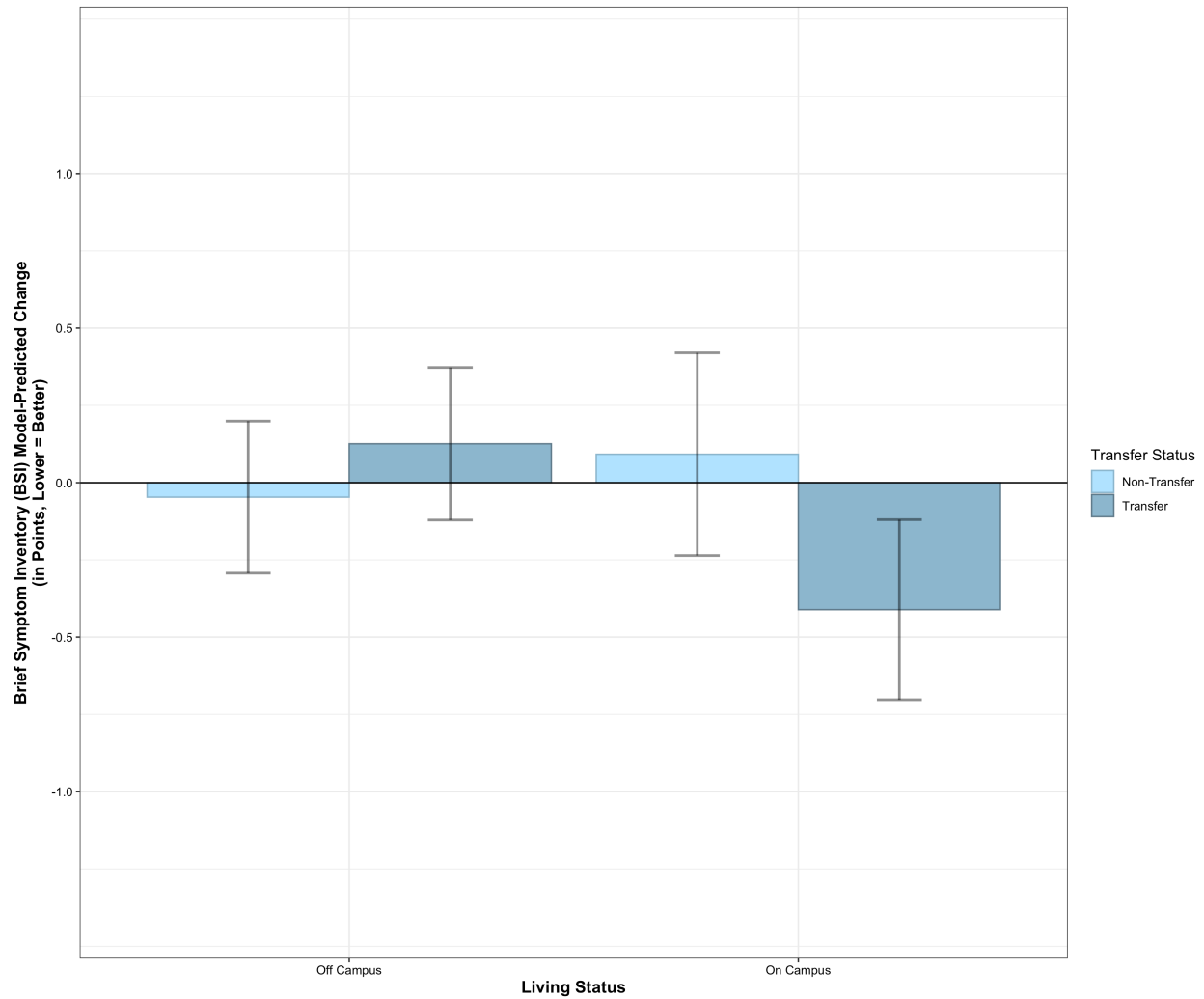
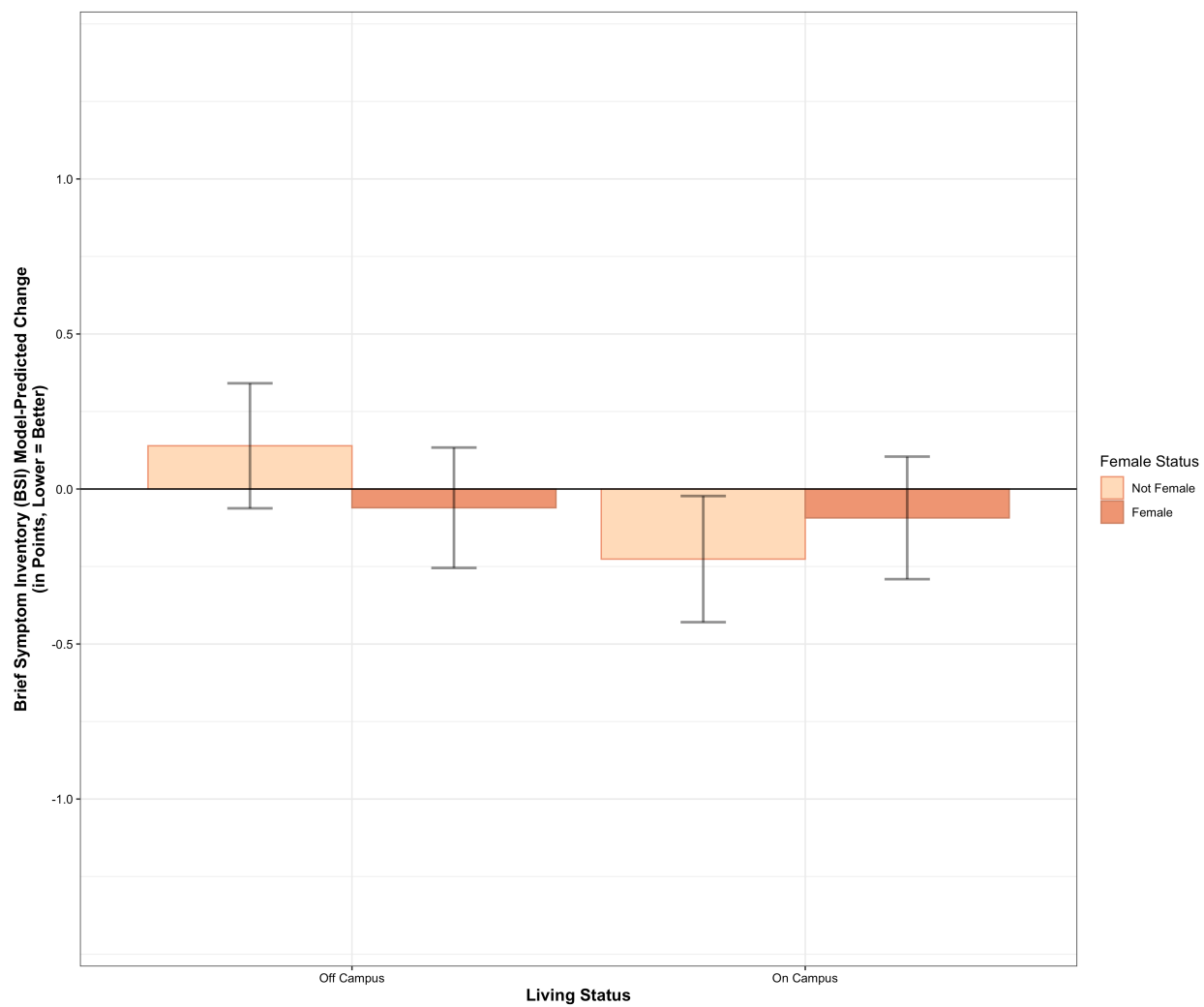


Figure 12

Interaction between Living Status and Female Status on BSI Change



Appendix A

WRC Week 10 Diary Card

Name:

Date Started:

Instructions:

You will track how often you use each skill daily across each week. In the daily boxes provided in the table, write a letter indicating whether or not you practiced a skill and how effective it was using the Utility & Frequency of Skills Usage key.

Utility & Frequency of Skills Usage Key

- E = Effective
- S = Somewhat effective
- N = Not effective
- D = Did not use

Mindfulness Skill	Th	F	Sa	Su	M	Tu	W
1. Wise Mind (balance between emotion mind and reasonable mind)							
2. Observe (just notice the experience) a component of the “What” skills							
3. Describe (put words on the experience) a component of the “What” skills							
4. Participate (throw yourself completely into it) a component of the “What” skills							
5. Non-judgmentally (see but don’t evaluate, just the facts) a component of the “How” skills							
6. One-mindfully (be completely present) a component of the “How” skills							
7. Effectively (focus on what works) a component of the “How” skills							

Interpersonal Effectiveness	Th	F	Sa	Su	M	Tu	W
1. DEAR MAN (<u>D</u> escribe, <u>E</u> xpress, <u>A</u> ssert, <u>R</u> einforce) (<u>M</u> indful, <u>A</u> ppear confident, <u>N</u> egotiate)							
2. GIVE (be <u>G</u> entle, act <u>I</u> nterested, <u>V</u> alidate, use an <u>E</u> asy manner)							
3. FAST (be <u>F</u> air, no <u>A</u> pologies, <u>S</u> tick to values, be <u>T</u> ruthful)							

Emotional Regulation	Th	F	Sa	Su	M	Tu	W
1. WOOP							
2. Gratitude (journaling, thank you notes, gratitude letter, gratitude visit)							
3. Cognitive restructuring							

Emotional Regulation	Th	F	Sa	Su	M	Tu	W
4. Check the facts							
5. Opposite action (when your emotion does not fit the facts)							
6. Wave skill (mindfulness of current emotion)							
7. REFRESHERs							

Distress Tolerance	Th	F	Sa	Su	M	Tu	W
1. TIPP (<u>T</u> emperature, <u>I</u> ntense exercise, <u>P</u> rogressive muscle relaxation, <u>P</u> rogressive breathing)							
2. ACCEPTS (<u>A</u> ctivities, <u>C</u> ontribute, <u>C</u> omparisons, <u>E</u> motion, <u>P</u> ushing away, <u>T</u> houghts, <u>S</u> ensations)							
3. IMPROVE (<u>I</u> magery, <u>M</u> eaning, <u>P</u> rayer, <u>R</u> elaxation, <u>O</u> ne thing in the moment, <u>V</u> acation, <u>E</u> ncouragement)							
4. Pros & Cons							
5. Willingness							
6. Turning the mind							
7. Mindfulness of current thought							

Appendix B

Wellness and Resilience Semi-Structured Interview Protocol

1. Can you describe your experiences and perspectives completing the Wellness and Resilience course?
2. Can you describe how, if at all, the Wellness and Resilience Course (WRC) influenced your mental health?
 - a. In what ways, if any, did the WRC affect how you manage stress, challenges, or difficult emotions?
 - i. Were there any modules of the WRC that were particularly helpful?
 - ii. Were there any modules of the WRC that were not helpful/relevant?
 - b. In what ways, if any, did the WRC have affect your sense of wellbeing (in other words, happiness or life satisfaction)?
3. Considering the WRC's teaching strategies, quiz section and lecture activities, discussion prompts, homework post prompts, course logistics, weekly mindfulness practices, or skills, strategies, practices and content taught...
 - a. Were there any parts of the class that felt particularly relevant and helpful to your cultural, racial, or other personal experiences?
 - b. Were there any parts of the class that felt particularly not relevant or not helpful to your cultural, racial, or other personal experiences?
 - c. Are there aspects of your identity that you feel shaped your experience in the WRC or your mental health more generally? If so, would you be open to sharing more about how those aspects shaped your experience completing the WRC or your mental health more generally?
4. How, if at all, did the course format (in-person or virtual) influence how you engaged with the material or applied what you learned?
5. Have you experienced any challenges in accessing mental health resources as a college student? If so, did the WRC have any impact on those challenges?
6. Is there anything else you'd like to share about your experience with the WRC and its impact—if any—on your mental health this quarter?