Mental Health Equity in Higher Education: 
The Role of Policy, Policing, and Visible Inclusion

by

Sara Abelson

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Doctoral Committee:

Professor Cleopatra H. Caldwell, Co-Chair 
Professor Daniel Eisenberg, University of California Los Angeles, Co-Chair 
Professor Tablye Chavous 
Assistant Professor Kristi Gamarel 
Professor Emeritus Patricia Gurin
DEDICATION

We “must give an honest and thorough account of the constructive interventions that have occurred as a consequence of all our efforts to create justice in education. We must highlight all the positive, life-transforming rewards that have been the outcome of collective efforts to change our society, especially education, so that it is not a site for the enactment of domination in any form.”

-bell hooks, *Teaching Community: A Pedagogy of Hope*, p. xiii

My dissertation is inspired by the work of bell hooks who spoke about the importance of not only naming the problems in academia and education but “also fully and deeply articulating what we do that works to address and resolve issues…to generate anew and inspire a spirit of ongoing resistance. When we only name the problem, when we state complaint without a constructive focus on resolution, we take away hope” (hooks, 2003, p. xiv). She powerfully documented the work of “teachers and students to transform academia so that the classroom is not a site where domination (on the basis of race, class, gender, nationality, sexual preference, religion)” and scholars who “courageously created new work to help us all understand better the ways diverse systems of domination operate both independently and interdependently to perpetuate and uphold exploitation and oppression” (hooks, 2003, p. xiii). She also emphasized a unique and hopeful focus on the wellbeing of learners (Specia & Osman, 2018). With this dissertation, I humbly aspire to conduct research that contributes to identifying solutions to protect the wellbeing of learners in higher education and transforming academia to tear down the diverse systems of domination operating independently and interdependently to perpetuate and uphold oppression.

The work is dedicated to the millions of students struggling each day with their mental health and taking great care to invest in their wellbeing and emotional health alongside their academic pursuits. Especially to those doing so as they confront racism, cissexism, transphobia, police violence, and other forms of discrimination and bias. This dissertation is dedicated to the thousands of students each year who take significant time to share their mental health struggles and perspectives with their schools and researchers, via the Healthy Minds Study—an act of hope and investment in making things better. It is also dedicated to the peers, teachers,
administrators, and changemakers working to transform postsecondary institutions to better support student mental health and wellbeing. As Grace Lee Boggs described them: the “solutionaries…solving one problem after another every minute of every day” (in her words: “the way women and especially mothers” do) (Boggs, 2013). Especially to those continuously prioritizing and seeking solutions that enhance equity. The death of my mentor and colleague, a beloved college counseling center director, Greg Eells, by suicide, while I worked on this dissertation, provided a heart-breaking reminder of how many solutionaries toil amid their own struggles and sometimes at the expense of their own wellbeing. To Greg, and the many, many colleagues and mentors I’ve worked alongside who are giving their heart and soul to changing the culture in higher education to better support student mental health. Finally, this dissertation is dedicated to the abolitionists who see abolition as a creative process and are working to identify what we need to invest in to keep our communities, and all who reside in them, safe (Alexander, 2021; Davis, 2003).
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ABSTRACT

The mental health of college students has become one of the top concerns in higher education. The number of students reporting psychological distress and seeking services has dramatically increased over the last two decades. Colleges are struggling to address longstanding mental health inequities such as those facing students of color (SOC) and transgender and gender diverse (TGGD) students. An accumulating body of research documents the scope of the problem and potential interventions. However, this literature has been siloed across a variety of academic fields and predominantly focused on individual student risk and protective factors while dedicating minimal attention to institutional opportunities for advancing mental health equity. This dissertation takes a socioecological approach and focuses on community, institutional, and policy-level factors to identify solutions that move beyond “fixing students” to help institutions become mental health promoting, not harming, environments.

First, I conduct a multidisciplinary review of higher education interventions and policies shaping student mental health, with attention to multiple levels of influence (Study 1 | Chapter 2). This chapter provides the first comprehensive review of the evidence base pertaining to public health approaches to promote college student mental health, prevent mental health problems, and intervene with students who are already struggling. My scholarship lays crucial groundwork for a more evidence-informed approach to address the growing challenges of student mental health in higher education.

Next, I advance research on two arenas of institutional practice—policing and TGGD-inclusive policies—relevant for enhancing mental health equity. Specifically, I use new data that I collected from 5379 students at a large Midwestern institution in partnership with the Healthy Minds Study to examine a) differing perceptions of and experiences with university police across race/ethnicity and gender identity and b) student perspectives on public safety policy-change opportunities to enhance mental health (Study 2 | Chapter 3). I take a novel intersectional approach that moves beyond binary conceptions of gender and considers the experiences of cisgender men, cisgender women, and TGGD students across multiple races/ethnicities. My
results provide the first quantitative, representative understanding of student experiences with police at a large, public university. Findings reveal half of students reported encounters with police; with 24% experiencing unfair treatment. Attitudes about police presence were mixed, most students indicated one or more problems with campus police, and support for policy change was widespread. There were significant differences across race and gender.

Last, I investigate the relationship between awareness and visibility of school TGGD-inclusion policies, psychosocial outcomes, and psychosocial inequities between TGGD and cisgender students using a survey that I designed and implemented at 28 institutions through the Healthy Minds Study (Study 3 | Chapter 4). This is the first research to examine the impact of higher education policy on psychosocial inequities between TGGD and cisgender students. I advance understanding of a novel and important construct: policy visibility. Multivariable results reveal higher visibility of inclusive nondiscrimination policies, gender inclusive restrooms, and pronoun options is associated with reduced psychosocial inequities for TGGD college students. The dissertation concludes with recommendations for colleges as we emerge from a global pandemic, which has further taxed student mental health. The culmination of the research suggests a more evidence-informed, policy-focused, equity-minded approach is needed to address the growing challenges of student mental health in higher education.
CHAPTER 1: Introduction

Mental health problems are common, consequential, and largely untreated on United States (U.S.) college campuses, undermining student academic outcomes, future earnings, and life chances. Marginalized students, including students of color (SOC) and transgender and gender diverse (TGGD) students, face additional mental health burdens and barriers to care compared to their peers. The number of students reporting psychological distress and seeking services has dramatically increased, and colleges and universities are struggling to respond. This three-paper dissertation takes a socioecological approach to understanding 1) public health interventions for responding to the complex problem of a high and increasing prevalence of mental health problems among college students and 2) identifying institutional opportunities for colleges and universities to enhance mental health equity.

This Introduction serves to define key terms and provide an overview of the dire state of college student mental health. I review research indicating that mental health problems among students are prevalent and increasing, largely untreated, consequential, highly inequitable, growing worse due to the global pandemic, and beyond the capacity of current budgets and solutions. After describing three prominent gaps in the existing research literature, I briefly outline the dissertation, its theoretical orientation, and its contributions.

Key Terms

Transgender and gender diverse (TGGD) students will be a focus of this dissertation. Sometimes referred to as gender minorities, TGGD students are individuals whose gender identity or expression differs from their assigned sex at birth or does not fit within the male–female binary. Varying terms are used to refer to the population; I selected transgender and gender diverse based on the 2020 Consensus Study Report of the National Academies of Sciences, Engineering, and Medicine on Understanding the Well-Being of LGBTQI+ Populations. The TGGD umbrella term encompasses transgender, genderqueer, and gender nonconforming individuals, as well as those who have another self-identified gender. TGGD
individuals are distinct from cisgender people, whose gender identity and expression matches their assigned sex at birth.

Students of color (SOC) are another population of focus in this dissertation. I use the term students of color to broadly refer to racial and ethnic minorities including African American/Black, Hispanic/Latin(x), Asian American/Asian, Middle Eastern/Arab, American Indian and Alaskan Native, Native Hawaiian and Pacific Islander, and multiracial students. Since 2020 there has been growing use of the term “BIPOC”—referring to those who are Black, Indigenous, and People of Color (Deo, 2021). However, the term has been critiqued for doing a “disservice to communities of color and efforts to dismantle systems of racial privilege” (Deo, 2021, p.118). It centers some groups in name only while they remain excluded in reality and simultaneously excludes other groups warranting attention (Deo, 2021). Students of color is the term most used in the literature reviewed and cited for this dissertation and I maintain use of that term. In Study 2 (Chapter 3) I also use the term unrepresented minority (URM), federally defined as U.S. citizens who identify as African American/Black, Hispanic/Latin(x), American Indian or Alaskan Native, or multiracial. I also include students identified in my research as Middle Eastern/Arab or Native Hawaiian and Pacific Islander; these students are not identified in federal data collection. The URM category does not include Asian students as they are not a numerical minority in higher education.

**State of College Student Mental Health**

“The problem is as great or greater than it’s ever been, and it’s not getting better.”

-Alan Leshner, Chair of the National Academies of Sciences, Engineering, & Medicine Consensus Report on Mental Health, Substance Use, and Wellbeing in Higher Education (2021)

**Increasing Prevalence**

Mental health concerns are prevalent and on the rise at higher education institutions (Eisenberg, 2019). Over 42% of students (8.4 million) are living with symptoms of a diagnosable mental health disorder (Blanco et al., 2008; Lipson, Kern, Eisenberg, & Breland-Noble, 2018). Undergraduate and graduate students are all experiencing high rates of mental health concerns (Council of Graduate Schools, 2021; Lipson, Zhou, Wagner, Beck, & Eisenberg, 2016; National Academies of Sciences Engineering & Medicine, 2021). Both national population surveys and clinical data document rising rates of anxiety, depression, psychological distress, and suicidal thoughts among college students. The number of students reporting psychological distress—such
as suicidal thoughts and depressive and anxiety symptoms—approximately doubled from 2009 to 2019 in population surveys (Duffy, Twenge, & Joiner, 2019). For example, the Healthy Minds Survey of more than 300,000 students at 300+ colleges and universities documented suicidal ideation among 14% of students in 2018 compared to 6% in 2007 (Duffy et al., 2019; Eisenberg et al., 2019). Likewise, clinical data collected between 2010–2015 shows significant increases for “self-reported distress in generalized anxiety, depression, social anxiety, family distress, and academic distress” as well as suicide and self-harm–related issues (Xiao et al., 2017, p.407). These findings are supplemented by national data showing similar patterns among adolescents and young adults in the general population (Mojtabai, Olfson, & Han, 2016). Moreover, mental health problems are not only increasing in prevalence but also in symptom severity (Twenge et al., 2010; Xiao et al., 2017). Evidence indicates students’ presenting concerns at campus counseling centers have grown more complex and severe over the last two decades (Benton, Robertson, Tseng, Newton, & Benton, 2003).

Largely Untreated Mental Health Problems

Alarmingly, about half of students with clinically significant symptoms are not receiving treatment (Lipson, Lattie, & Eisenberg, 2019). There has been consistent growth in the number of student of students seeking treatment over the last decade (Lipson, Lattie, et al., 2019; Oswalt et al., 2020). In fact, growth in demand for college counseling center services has far outpaced growth in institutional enrollment (Xiao et al., 2017). Yet, a large proportion of college students remain struggling with untreated clinically significant mental health symptoms (Blanco et al., 2008; Lipson, Lattie, et al., 2019; Merikangas et al., 2011; Mojtabai et al., 2016).

Consequences of Mental Health Problems

Untreated mental health disorders have major consequences. They undermine academic outcomes, persistence, retention, future earnings, and life chances (Arria et al., 2013; Billingsley & Hurd, 2019; Breslau, Lane, Sampson, & Kessler, 2008; Bruffaerts et al., 2018; De Luca, Franklin, Yueqi, Johnson, & Brownson, 2016; Eisenberg, Golberstein, & Hunt, 2009; Ettner, Frank, & Kessler, 1997). Most tragically, they lead to suicide, which is the second leading cause of death for college students (NIMH, 2017; Cash & Bridge, 2009). Worldwide, mental health disorders are a leading cause of disability, morbidity, and mortality and the leading cause of disability for young adults (Institute for Health Metrics and Evaluation, 2015; Kessler, Chiu, Demler, & Walters, 2005; Michaud et al., 2006; Murthy et al., 2001; The World Health
Organization, 2004). Most mental health disorders emerge by age 25, with onset and exacerbation of symptoms often coinciding with college attendance (Hunt & Eisenberg, 2010; Kessler, Berglund, et al., 2005; Pedrelli, Nyer, Yeung, Zulauf, & Wilens, 2015). Early intervention can reduce the persistence of these disorders, their associated functional impairment and loss of productivity, and their tremendous annual cost to individuals and society (Alegría, Greif Green, McLaughlin, & Loder, 2015; Blanco et al., 2008; National Academies of Sciences Engineering & Medicine, 2021; Wang, Demler, & Kessler, 2002).

**Inequities in Mental Health Problems**

The mental health problems challenging postsecondary institutions are even more severe when considering the burdens and treatment barriers experienced by student subpopulations. Marginalized and minoritized students, including SOC and TGGD students, face additional mental health burdens and barriers to care compared to their peers (Alegría et al., 2015; Eisenberg, Hunt, & Speer, 2013; Lipson et al., 2018; Lipson, Raifman, Abelson, & Reisner, 2019; Merikangas et al., 2011; Oswalt & Lederer, 2017; Woodford, Kulick, & Atteberry, 2015). The largest inequities in prevalence rates are experienced by TGGD students (Lipson, Raifman, et al., 2019; Oswalt & Lederer, 2017). TGGD students experience symptoms of mental health disorders and suicidality at 2-4 times the rate of their cisgender peers (Lipson, Raifman, et al., 2019). In a national survey of more than 65,000 students at 71 institutions prior to COVID-19, 78% of TGGD students reported clinically significant symptoms of one or more mental health disorders compared with 45% of cisgender students (Lipson, Raifman, et al., 2019). More than one third of TGGD students reported thinking seriously about suicide in the past year relative to 1 in 10 cisgender students (Lipson, Raifman, et al., 2019). These mental health inequities have been attributed to experiencing high levels of discrimination, victimization, and bullying (Clements-Nolle, Marx, & Katz, 2006; Effrig, Bieschke, & Locke, 2011; Gower et al., 2018; Kosciw, Greytak, Giga, Villenas, & Danischewski, 2015; Robinson & Espelage, 2011; Russell, Toomey, Ryan, & Diaz, 2014; Seelman, Woodford, & Nicolazzo, 2017; Toomey, McGuire, & Russell, 2012). Though mental health inequities are well documented for TGGD youth and young adults, the population remains understudied in higher education research because most datasets do not collect the needed information to identify these students (Patterson, Jabson, & Bowen, 2017).
SOC also face mental health inequities at higher education institutions. They experience additional mental health burdens, detrimental academic effects, and barriers to care compared to White students (Chen, Stevens, Wong, & Liu, 2019; Lipson et al., 2018). They face stressors from institutional and interpersonal racism, hostile racial climates, belonging uncertainty, challenges to social integration and support, and imposter syndrome (Cokley, McClain, Enciso, & Martinez, 2013; Hurtado et al., 2007; Lige, Peteet, & Brown, 2017; Walton & Cohen, 2011). These stressors are all linked to psychological consequences including increased symptoms of psychological distress, depression, and anxiety (Bernard, Lige, Willis, Sosoo, & Neblett, 2017; Cokley, Hall-Clark, & Hicks, 2011; Cokley et al., 2013; Keels, Durkee, & Hope, 2017). In terms of population-level variation in the prevalence of clinically significant mental health symptoms among SOC and White students the Healthy Minds Study has found a reduced odds among African Americans but increased odds among Arab/Arab American and multiracial students relative to White students (Lipson et al., 2018). Analyses of 2015 American College Health Association National College Health Assessment from 108 colleges identified that despite reporting lower rates of psychiatric diagnoses compared with White students, multiracial and Asian/ Pacific Islander students were more likely to report having felt hopeless, so depressed that it was difficult to function, or overwhelmed by anger, and were more likely to have considered or attempted suicide (Chen et al., 2019). Compared with Whites students, Black and Hispanic students reported lower rates of psychiatric diagnoses but similar rates of past-year suicide attempts (Chen et al., 2019).

Beyond prevalence differences, racial and ethnic minority students are more likely to report functional impairments caused by mental health than their White peers (Eisenberg et al., 2013). SOC present to college counseling centers with higher levels of psychological distress than White students (Kearney, Draper, & Barón, 2005). This likely stems from delays in accessing treatment due to barriers such as financial ones, historical mistreatment in healthcare settings, lack of cultural alignment and sensitivity by providers and stigma (Alegría et al., 2002, 2015; Busby et al., 2019; Cabral & Smith, 2011; Eisenberg, Downs, Golberstein, & Zivin, 2009; Herman, Steve et al., 2011; Horwitz et al., 2020; Kearney et al., 2005; Lipson et al., 2018; Padgett, Patrick, Burns, & Schlesinger, 1994). SOC are the least likely college students to access services (Eisenberg, Downs, Golberstein, & Zivin, 2009; Herman, Steve et al., 2011; Lipson et al., 2018; Masuda et al., 2009). Diagnoses as well as medication and therapy utilization rates are
lower among SOC relative to White students (Herman, Steve et al., 2011; Kearney et al., 2005; Lipson et al., 2018; Masuda et al., 2009). Only one-quarter of African-American college students have received a mental health diagnosis compared to nearly half of White students (Lipson et al., 2018). Asian students have the lowest prevalence of mental health treatment; approximately 80% of students with clinically significant symptoms are untreated (Lipson et al., 2018). Disparities exist not only in initial access to care, but also in quality of services received and completed (Alegría et al., 2002; Kearney et al., 2005). Unfortunately, despite investments in college student mental health over the last decade, mental health inequities faced by SOC have not declined (Lipson et al., 2022). U.S. institutions of higher education are increasingly diverse (Espinosa, Turk, Taylor, & Chessman, 2019) and colleges and universities—“originally designed to serve a predominantly white and male population”—urgently need strategies to equitably advance the mental health of all students (National Academies of Sciences Engineering & Medicine, 2021, p. 35).

**Growing Worse Due to the Global Pandemic**

“It would be a tragedy if we beat back one public health crisis only to allow another to grow in its place”

- Vivek H. Murthy, M.D., M.B.A.
  Vice Admiral, U.S. Public Health Service
  Surgeon General of the United States in *Protecting Youth Mental Health: The U.S. Surgeon General’s Advisory*

It is too early to determine the full magnitude of impact of the ongoing, rapidly evolving, global coronavirus disease 2019 (COVID-19) pandemic on higher education and college student mental health. However, substantial and growing evidence suggests that the pandemic is worsening young adult mental health and exacerbating mental health inequities (American Council on Education, 2020; Copeland et al., 2021; Czeisler et al., 2020; Ettman et al., 2021; Hoyt, Cohen, Dull, Maker Castro, & Yazdani, 2020; Liu, Pinder-Amaker, Hahm, & Chen, 2020; Woolston, 2020). There is some disagreement about the scope of the problem and certainly some evidence of resilience among young people (American College Health Association & Healthy Minds Study, 2020; American Council on Education, 2020; National Academies of Sciences Engineering & Medicine, 2021; Office of the Surgeon General, 2021b). However, college students report the pandemic has made it more difficult to access mental health care, stressed their financial situation, and taken the lives of loved ones (American College Health Association
Remote learning distanced students from friends, mentors, school resources, and valuable and supportive in-person activities. Self-reported rates of depression increased along with negative mental health impacts on academics and levels of psychological wellbeing decreased in Spring 2020 compared to Fall 2019 (American College Health Association & Healthy Minds Study, 2020).

A pandemic-related rise in the prevalence of mental health problems is not unique to college student populations; the prevalence is rising in adolescent and young adult populations overall, including among the young people who will be entering institutions of higher education in the coming years (National Academies of Sciences Engineering & Medicine, 2021; Office of the Surgeon General, 2021b; Panchal et al., 2020; Racine et al., 2021). For example, emergency room visits for suspected suicide attempts were up 51% and 4% for U.S. adolescent girls and boys, respectively, in early 2021 compared to the same time period in 2019 (Yard et al., 2021). Demand for treatment services has spiked, far outpacing capacity, and likely will continue to grow (Office of the Surgeon General, 2021b; Parker-Pope, 2021; Woolston, 2021). The “unfathomable number of deaths, pervasive sense of fear, economic instability, and forced physical distancing from loved ones, friends, and communities” accompanying the pandemic is likely to exacerbate stress and tax mental health for years to come (Office of the Surgeon General, 2021, p.4). Additionally, the pandemic coincided with several other notable events in U.S. society that may have affected the mental and emotional wellbeing of young people. For example, violent deaths of several Black Americans at the hands of police officers and ensuing protests; COVID-related violence against Asian Americans; a White supremacist insurrection at the U.S. capitol; gun violence; growing concerns about climate change; and “emotionally-charged misinformation” (Johnston & Davey, 1997; Office of the Surgeon General, 2021b, 2021a; Ssentongo et al., 2021; Zhou, Banawa, & Oh, 2021).

These incidents and the pandemic disproportionately impacted SOC and other marginalized communities, especially TGGD students, exacerbating mental health inequities (Hoyt et al., 2020; Office of the Surgeon General, 2021b). For example, rising rates of depression and anxiety (doubling in one survey) among graduate students during the pandemic were most pronounced among economically disadvantaged students, Latinx students, and sexual and gender minorities (lesbian, gay, bisexual, and TGGD students) (Woolston, 2020). Research demonstrates that American Indian and Alaska Native young people faced pandemic-related
education barriers due to limited internet access (American Indian Policy Institute, 2021). Black youth and college students were more likely than peers to lose a loved one to COVID-19 (American College Health Association & Healthy Minds Study, 2020; Hillis et al., 2021). Asian American college students reported increased stress due to COVID-19 related harassment (Zhou, Banawa, & Oh, 2021). Latino youth reported high rates of loneliness and decreased mental health during the pandemic (Rogers, Ph, Ha, Ph, & Ockey, 2020). TGGD young people lost access to school-based services, were sometimes confined to unsupportive or unsafe homes, and experienced large increases in psychological distress (Department of Education Office of Civil Rights, 2021; Gonzales, Loret de Mola, Gavulic, McKay, & Purcell, 2020; Hoyt et al., 2020; Jarrett et al., 2020; Panchal et al., 2020).

**Beyond the Capacity of Current Budgets and Solutions**

High and rising rates of mental health disorders and distress, increased severity and suicidality, increased treatment-seeking, widening inequalities, and an ongoing pandemic poised to further exacerbate mental health and inequities, are unfolding in a financially strained higher education environment (National Academies of Sciences Engineering & Medicine, 2021; Selingo, 2015; Woolston, 2021; Xiao et al., 2017). Institutions of higher education face increased operating costs, greater market competition, and significant declines in public financial support, “resulting in tight budgets and difficult allocation decisions” (National Academies of Sciences Engineering & Medicine, 2021, p.38). The pandemic has led to additional unprecedented financial challenges for colleges and universities (Jenkins, Fink, & Brock, 2020; National Academies of Sciences Engineering & Medicine, 2021; Startz, 2020). While clinical treatment is highly effective and necessary for many students, current university budgets and counseling center capacities will not allow for addressing the large and growing problem of student mental health primarily through 1-on-1 intervention. The major and growing national shortage of mental health professionals further interferes with this approach (Cummings, Wen, & Druss, 2013; Thomas & Holzer, 2006; Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009).

Even prior to the COVID-19 pandemic, school counseling centers could not keep up with student demand despite growing budgets and expanding capacity at many institutions over the last decade (Benton et al., 2003; Gallagher, 2014; Gallagher, 2010, 2012; LeViness, Gorman, Braun, Koenig, & Bershad, 2019; Xiao et al., 2017). More than a decade ago, nearly half of college counseling centers reported having to adopt waitlists and nearly 90% of counseling
center directors raised concerns that clients might not be getting treatment when they needed it (Gallagher, 2011). The pandemic is now increasing the need and demand for support further (Parker-Pope, 2021; Woolston, 2021). It is likely to increase needs most significantly at institutions with the fewest resources to respond, such as community colleges (Hope Center, 2021; Lederer, Hoban, Lipson, Zhou, & Eisenberg, 2021; Liu et al., 2020). Cost-effective, scalable public health prevention and population-level interventions are urgently needed.

**Gaps in the Research Literature**

Given the scope and consequences of student mental health challenges in higher education, this is an area that demands high quality research to facilitate evidence-based practice. Research to date has primarily focused on documenting and describing the problem (e.g., the prevalence and correlates of mental health disorders and help-seeking, variation across institution-types and student subpopulations). This important work has contributed to shifting student mental health from a stigmatized issue spoken about only in the shadows to one repeatedly reported by 73% of college presidents as their top concern (Turk, Soler, & Vigil, 2020; Turk, Soler, & Chessman, 2020). The findings also likely played a role in garnering federal funding and attention, such as the Substance Abuse and Mental Health Services Administration Suicide Prevention Grants and the National Academies of Sciences, Engineering, and Medicine report (Garraza, Boyce, Walrath, Goldston, & McKeon, 2018; National Academies of Sciences Engineering & Medicine, 2021; Walrath, Garraza, Reid, Goldston, & McKeon, 2015). However, the body of research describing the problem does not provide direction, guidance, or evidence regarding how to respond.

More recently, researchers have increasingly begun to investigate solutions and public health interventions to address the growing challenge of student mental health. However, the literature is dispersed in different academic disciplines and journals (Daenekindt & Huisman, 2020). Inconsistent study designs, outcomes, measurement, terminology, and organization makes it challenging to interpret and draw conclusions for practice. The work has not been coherently summarized for higher education decision-makers. In addition, the evidence-base overwhelmingly focuses on individual-level interventions. The role of interpersonal, community, and institutional interventions has been neglected (Byrd & McKinney, 2012). Interpersonal, community, and institutional interventions have the potential to be more cost-effective and scalable than individual interventions; they also hold promise for preventing mental health
problems, eliminating or reducing the need for treatment (Dooris, 2009; O’Connell, Boat, & Warner, 2009). Existing research has rarely focused on investigating how institutional policies, practices, and cultures contribute to the increasing incidence of mental health concerns and can be harnessed to promote mental health (Anderman, 2002; Eccles & Roeser, 2011; National Academies of Sciences Engineering & Medicine, 2021; Posselt, 2018; Strayhorn, 2012). Institutions need guidance on the systemic changes that will foster “learning environments where a changing student population can thrive” (National Academies of Sciences Engineering & Medicine, 2021, p.26). Rates of depression, anxiety, and help-seeking vary considerably across higher education institutions but little to no research has identified modifiable factors that account for this variation (Cress & Ikeda, 2003; Lipson, Gaddis, Heinze, Beck, & Eisenberg, 2015).

Existing college student mental health literature has also not dedicated enough focus to issues of equity and to populations facing inequities. Intervention research and policy evaluation in higher education has seldom targeted and measured mental health inequities as an outcome. Overall, research on college student mental health has rarely taken an intersectional approach that considers the experiences of students marginalized across multiple axes of their identity and reveals how institutional policies and practices shape these students’ lives. Research is needed to identify institutional opportunities to undo racist, cissexist, classist, heterosexist, ablest systems to reduce mental health inequities and enhance mental health equity. The overall direction of my dissertation research is motivated by the dearth of research focused on solutions to the college student mental health crisis and public health opportunities for intervention at all levels of the socioecological model to address mental health equity in higher education. I will provide a fuller discussion of these and other gaps in the existing research literature in the body of the dissertation.

**Dissertation Overview**

This dissertation provides an integrated review of existing intervention evidence across every level of the socioecological model and conducts new research to advance understanding of institutional opportunities for enhancing mental health equity. It seeks to move the field of student mental health—both in terms of science and practice—beyond documenting the problem and focusing on individual-level change to advance institutional and policy-level solutions. In Study 1 (Chapter 2) I conduct a detailed review of evidence regarding the effectiveness of a wide
range of strategies to address student mental health. I organize the review according to levels of the socioecological model, examining individual, interpersonal, community, institutional, and public policy interventions to promote student mental health, prevent mental health disorders, and enhance mental health equity in higher education. I focus primarily on mental health conditions such as depression, anxiety, eating disorders, and suicide risk, as well as positive mental health such as the concept of flourishing. Alcohol and other substance use have clear connections to mental health but are not a focus of the review or dissertation. I conduct an integrative review, with purposive sampling, bibliographic database searching, and reference list checking in order to summarize and synthesize the vast relevant research literature (Grant & Booth, 2009; Sutton, Clowes, Preston, & Booth, 2019).

Study 2 (Chapter 3) examines diverse students’ experiences with, attitudes toward, concerns about, and desire for change regarding how their campus is policed. Through a large, representative survey of students at a public university in the Midwest, I investigate students’ 1) encounters with police while in college, querying frequency and quality of interactions with police as well as academic impacts; 2) attitudes toward police presence on campus, specifically whether it makes them feel safe and supports their mental health; 3) concerns about campus police; and 4) perspectives on policy changes under debate to improve public safety at their school. Across each area, I examine subgroups at the intersection of race and gender identity to address the experiences and perspectives of White cisgender men, White cisgender women, White TGGD students, Asian cisgender men, Asian cisgender women, Asian TGGD students, URM cisgender men, URM cisgender women, and URM TGGD students. Study 3 (Chapter 4) examines another area of institutional policy and more closely investigates impact on two key psychosocial outcomes, sense of belonging and suicidal ideation. I advance research on an understudied population, TGGD students, and construct, policy visibility. With representative survey data from 28 colleges, I investigate personal awareness and visibility of 3 TGGD-inclusive policies—inclusive nondiscrimination policies, gender inclusive restrooms, and pronoun options—and test for associations with psychosocial outcomes among and inequities between TGGD and cisgender students. Finally, in Chapter 5 I summarize major findings from Chapters 2-4 and discuss their implications for research, policy, and practice.

Theoretical Orientation
This dissertation is primarily guided and informed by socioecological theory (Bronfenbrenner, 1979; Sallis, Owen, & Fisher, 2008). Socioecological theory emphasizes the extent to which health is shaped by multiple, intersecting levels of influence. It led me to organize my literature review according to opportunities to intervene through shaping individual, interpersonal, community, and institutional factors as well as the enabling policy environment and to focus my empirical research on structural, institutional policies (Bronfenbrenner, 1979; Cohen, Scribner, & Farley, 2000; Mcleroy, Bibeau, Steckler, & Glanz, 1988). Ecological models in public health emerged from many disciplines and fields. Various models delineate different levels of influence (Sallis, Owen, & Fisher, 2008). For example, Bronfenbrenner (1979) described micro, meso, and macro levels of environmental effects on health behavior, encompassing rings of influence including family members, physical settings, policy, and other factors. In this dissertation I adopt McLeroy’s model, which suggests the importance of intrapersonal, interpersonal, institutional, and public policy factors (McLaren & Hawe, 2005; Mcleroy et al., 1988).

My research is also informed by contemporary ecological models. They emphasize that the complex relationship between individuals and their social context is multidirectional, co-constitutive, and constantly in formation (Burke, Joseph, Pasick, & Barker, 2009). The co-constitutive aspect of contexts is an important but underrecognized principle of the ecological approach. It suggests that an important aspect of studying context “is the construction that participants, including observers and those being observed, make of” it (Kingry-Westergaard & Kelly, 1990; Richard et al., 2011, p.310). My focus on representative understanding, across a student body, of both experiences with and perspectives on campus policing draws from this work. As does my attention to personal policy awareness and visibility across the student body.

Ecological models, while they draw important attention to context, have been critiqued for not explicitly emphasizing considerations of social position and social stratification (Coll et al., 1996). Failure to attend to these systems, processes, and their consequences has undermined scientific understanding of the diversity and strengths of marginalized populations and hampered the identification of interventions that “lessen the deleterious effects” of the poor treatment and suboptimal conditions to which marginalized populations are subjected by those in dominant social positions (Coll et al., 1996, p.1892). This dissertation aims to focus on contextual influences and social mechanisms, such as racism, cissexism, prejudice, and discrimination, that
shape the experiences, lives, and mental health of SOC and TGGD students. Therefore, it also
draws from frameworks and models that explicitly highlight their influence. For example, the
Integrative Model for the Study of Development Competencies in Minority Children draws
attention to the “preeminence of social position factors:…attitudes of individuals that societies
use to stratify or place individuals in the social hierarchy” such as race, social class, and gender
(Coll et al., 1996, p.1895). The model stresses the extent to which these social position factors
are not additive or direct in their influence but interact to magnify or diminish impacts of racism,
prejudice, discrimination, and oppression (Coll et al., 1996). It describes how three “major
derivatives of social stratification”—social position, racism, and segregation—create inhibiting
and promoting environments in schools that shape student lives and outcomes (Coll et al., 1996,
p.1896). Study 2 (Chapter 3), for example, examines how race and gender interact to
differentially shape experiences with campus police and create inhibiting or promoting
environments in schools. Margaret Beale Spencer’s phenomenological variant of ecological
systems theory (PVEST) (Spencer, Dupree, & Hartmann, 1997) is an example of another model
that brings explicit attention to the “problem of inequality as experienced through multiple layers
of navigated contexts” (Velez & Spencer, 2018, p.75). Like Coll’s Integrative Model, PVEST
emphasizes “intersectionality’s forefronting of complex structures and social positionality—that
power dynamics and interconnected systems lead to differential outcomes within socially
constructed categories like class, race, and gender” while attending to the “how” and “why” of
the process (Velez & Spencer, 2018, p.75). This dissertation is grounded in a core tenant of
PVEST—that how individuals perceive and make sense of their experience is useful in
identifying points for intervention (Spencer et al., 1997). My research draws on TGGD students’
perceptions of their campus environments and assesses students’ perceptions of policing on
campus to identify points of policy intervention.

Other models and frameworks have expanded on the ecological model to specifically
focus on the contextual influences and social mechanisms shaping the lives of TGGD
individuals. For example, the gender minority stress framework (Hendricks & Testa, 2012),
which was adapted from the minority stress model (Meyer, 2003), describes how anti-
transgender stigma across all levels of the social ecological model results in adverse mental
health outcomes among TGD populations (Gamarel, Reisner, Jean-Philippe, Nemoto, &
Operario, 2014; Hendricks & Testa, 2012; Tan, Treharne, Ellis, Schmidt, & Veale, 2020;
Valentine & Shipherd, 2018; White Hughto et al., 2015). For example, structural stigma in the form of state laws that fail to protect TGGD access to or discrimination in healthcare, employment, transportation, and restrooms contributes to interpersonal stigma in the form of harassment, violence, discrimination, and mistreatment, which are correlated with depression, anxiety and suicide attempts (Clements-Nolle, Marx, Katz, et al., 2006; Hatzenbuehler, Keyes, & Hasin, 2009; Hendricks & Testa, 2012; Mcdowell, Hughto, & Reisner, 2019; Reisner, Hughto, et al., 2015). The gender minority stress framework, like Coll’s Integrative Model and PVEST, emphasizes that stressors TGGD face in multiple environments, rather than gender variance itself, shapes outcomes – sometimes resulting in psychological problems but also resulting in resilience (Hendricks & Testa, 2012). Researchers have described how anti-transgender stigma operates at individual, interpersonal, and structural levels and identified intervention opportunities at each of those levels but also emphasized the extent to which research to date has primarily focused on individual and interpersonal forms of anti-transgender stigma and intervention (White Hughto et al., 2015). They call for future work to investigate structural interventions involving institutional policies, practices, and norms and specifically highlight the importance of inclusive nondiscrimination policies (National Academies of Sciences, Engineering, 2020; Pitcher, Camacho, Renn, & Woodford, 2018; White Hughto et al., 2015). My research on TGGD-inclusion policies responds to this call.

Contributions

This dissertation will expand knowledge and reorient us to the complex issue of student mental health in several ways. It addresses the demand from theory, research, policy makers, and leaders for greater understanding of how school contexts, institutional factors, and upstream policies impact mental health and health disparities (Eccles & Roeser, 2011; National Academies of Sciences Engineering & Medicine, 2021; Office of the Surgeon General, 2021b; Palmer, Ismond, Rodriquez, & Kaufman, 2019). It brings a particular focus on equity—attending to contextual factors in higher education that shape the mental health outcomes of students with multiple, intersecting identities too often marginalized by those in dominant social positions—and identifying where intervention research has not done so. Further, the dissertation will explore how school policy impacts student outcomes by investigating policy awareness and visibility. It focuses on policy arenas actively under revision in practice but not understood for their impact and advances the evidence-base to guide current decision-making. Broadly, the dissertation will
provide important information to all those working to improve student outcomes and equity on U.S. college campuses, which serve more than half of our nation’s young people (McFarland et al., 2018). Attention to the impact of school factors and upstream policy on student mental health and the responsibility of institutions “for forming learning environments where a changing student population can thrive” will hopefully help motivate and guide changes that can ultimately improve student outcomes in an equitable manner (Bauman, Bustillos, Benisimon, Brown, & Bartee, 2005; Dunn, Milliren, Evans, Subramanian, & Richmond, 2015; Jayakumar, Garces, & Park, 2018; Ledesma, 2016; O’Connell, Boat, & Warner, 2009; Palmer et al., 2019; Pascarella & Terenzini, 2005; Titus, 2004; Valencia, 1997).

Introduction

When college and university presidents are asked about their most pressing concerns, the mental health of students rates as the most common response (Turk, Soler, & Vigil, 2020). These concerns have been growing over time, starting well before the COVID-19 pandemic. The number of students reporting psychological distress—such as suicidal thoughts and depressive and anxiety symptoms—approximately doubled from 2009 to 2019 (Duffy et al., 2019). Similarly, students are seeking mental health care at ever-increasing rates, and campus counseling and health centers are struggling to keep up (Center for Collegiate Mental Health, 2020; Lipson, Lattie, et al., 2019). Student mental health has implications not only for health and wellbeing but also for academic outcomes such as grades and retention (Eisenberg, Golberstein, et al., 2009).

To guide responses to these challenges, several national organizations have gathered input from experts and stakeholders. For example, a Consensus Report from the National Academies of Sciences, Engineering, and Medicine (2021) summarizes the situation and lays out broad principles for solutions. The Jed Foundation has developed a framework for improving campus mental health systems (Jed Foundation, 2019), and the Steve Fund, in collaboration with Jed, has issued a framework with a focus on mental health equity and students of color (equityinmentalhealth.org). Other organizations including the American College Health Association (ACHA), NASPA, and the American Council on Education (ACE) have also produced a variety of reports addressing student mental health (e.g., Douce & Keeling, 2014; Wesley, 2019).

These important reports and frameworks, however, do not provide a detailed review of evidence regarding the effectiveness of strategies to address college student mental health. In fact, an integrated review of interventions across all levels of the socioecological model (Figure 2.1), does not exist. This chapter aims to fill this gap by examining what is known about the effectiveness of programs, services, practices, and policies to address student mental health,
using a socioecological framework that covers individual, interpersonal, community, institutional, and public policy levels of intervention. I provide an integrative review, focusing on translating research for practice (Sutton et al., 2019). I aim to bring together a variety of threads that have often existed in relative isolation from each other in research and practice. Research in higher education draws from many different academic disciplines, and each discipline or even individual researcher tends to focus on certain levels of influence and intervention more than others (e.g., individual versus institutional) (Daenekindt & Huisman, 2020). Similarly, current practice to support student mental health is often fragmented across many areas of campus life, even if it is typically concentrated with counseling and health services. This review draws deliberately from a variety of disciplines that have made contributions relevant to student mental health across all levels of the socioecological model.

I take a public health approach and broadly consider programs, policies, and practices to promote mental health, prevent mental health disorders, and support the growing portion of students in higher education experiencing depression, anxiety, eating disorders, suicidality, and other mental health disorders. Mental health is “a state of wellbeing in which every individual realizes [their] own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to [their] community” (World Health Organization, 2002, p. 5). It exists on a dual continuum that includes positive mental health (flourishing) and poor mental health (languishing) on one axis, and the presence or absence of mental illness symptoms on another axis (Keyes, 2007; Peter, Roberts, & Dengate, 2011; Westerhof & Keyes, 2010). Promoting mental health and preventing mental illness are “essential and complementary steps” for reducing the burden of disease and for achieving the academic, social, and economic outcomes valued by higher education (Keyes, 2007; Winzer, Lindberg, Guldbrandsson, & Sidorchuk, 2018, p. 3; World Health Organization, 2002).

A number of valuable sources review interventions that address specific mental health disorders (e.g., depression: Buchanan 2010), promote specific protective factors (e.g., sleep:
reduce specific risk factors (e.g., stigma: Yamaguchi et al., 2013), or are delivered in a specific format (e.g., computer-delivered: Davies et al. 2014). Prior reviews examine a large volume of interventions and are located in a wide range of journals (e.g., *Journal of American College Health, Journal of Sleep Research, Prevention Science, Journal of Affective Disorders, Journal of Medical Internet Research*) representing numerous fields, including college health, public health, mental health, psychology, and sociology. Many methods for organizing and evaluating evidence are used, making it challenging for higher education researchers and practitioners to comprehensively assess the current state of evidence, gaps, and future directions for research. Below I outline some of these methods; I also clarify why I chose to organize this review based on the socioecological model.

**Organization of Intervention Review**

Several sources in the literature use a public health prevention framework to classify college student mental health interventions. For example, Cimini and Rivero (2018) describe the importance of behavioral health promotion, early intervention, and specialized interventions (Figure 2.2). Health promotion, sometimes referred to as primary or universal prevention, includes efforts to promote health and prevent problems across all students (O’Connell et al., 2009). Early intervention, sometimes referred to as secondary prevention, includes efforts to identify and address students at risk (O’Connell et al., 2009). Specialized interventions, sometimes referred to as indicated or tertiary prevention, aim to reduce severity and negative impacts among students who have developed mental health symptoms (O’Connell et al., 2009). I do not use a prevention framework to organize the review since intervention types and institutional efforts in higher education often cut across levels of prevention and intervention.

**Figure 2.2. Behavioral Health Prevention Spectrum**

- **Behavioral Health Promotion**
  - Social norms campaigns
  - Peer health education
  - Positive psychology curriculum

- **Early Intervention**
  - Screening interventions
  - Gatekeeper training
  - Skills training for students at-risk
  - Means restriction

- **Specialized Interventions**
  - Treatment services
  - Support & recovery groups
  - Victim services

- **Optimize Health**

- **Prevent Problems**

- **Treat Problems**

*Note. Figure depicts a prevention framework for addressing student mental health, as depicted by Cimini and Rivero (2018).*
I considered reviewing evidence for interventions according to who implements them: mental health providers, student affairs practitioners, faculty, or financial aid officers, for example. However, many evidence-based interventions are relevant and require coordination across positions and settings within higher education (student affairs, academic affairs, health, and wellness services) for adoption and evaluation. I aim instead to present information for cross-disciplinary teams of researchers and practitioners working to address student mental health. Likewise, I chose not to review intervention evidence by target outcome (e.g., depression, anxiety, eating disorders) because of the unique opportunity within colleges to broadly develop student strengths to face current and future stressors, enhance mental health, and prevent many types of mental health disorders (Conley et al., 2013).

I instead categorize interventions according to levels of the socioecological model, a framework for understanding varying factors influencing health and wellbeing (Bronfenbrenner, 1979; McLeroy, Bibeau, Steckler, & Glanz, 1988). This approach aligns with global Healthy University frameworks and initiatives (Dooris & Doherty, 2009; Orme & Dooris, 2010; Tsouros, Dowding, Thompson, & Dooris, 1998). I group interventions according to whether they target individual, interpersonal, community, or institutional factors or public policy (Figure 2.3). In each section below, I present what is known about changing individuals, relationships, community norms, institutional factors, and public policy to improve student mental health, with an eye toward what institutions have the power to influence.

By reviewing interventions according to levels of the socioecological model, I aim to bring attention to the degree to which student mental health is influenced by multiple, interacting layers of context: intrapersonal/individual factors, interpersonal factors (family, friends, peers), school contexts, and distal social, economic, and political contexts. I call attention to the focus of existing research on intrapersonal factors and interventions, as well as higher education’s opportunities to enhance mental health through intervention at community, institutional, and policy levels. In reviewing current evidence regarding how colleges shape these factors to influence mental health, I acknowledge that pathways to mental health are not universal but vary across racial/ethnic, social class, citizenship, gender, and sexuality due to “differences in culture, family resources, school quality, community supports, and economic and social conditions” (Perna & Thomas, 2008, p. 32). I assess the degree to which the research literature has taken diversity in pathways to mental health into account.
Figure 2.3. Intervention Types to Address College Student Mental Health Across Socioecological Levels

Note. Figure presents a socioecological framework for understanding the diverse array of available interventions to address student mental health in higher education. Individual interventions address knowledge, attitudes, help-seeking, skills, and strengths. Interpersonal interventions enhance interpersonal protective factors (e.g., social support, belonging) and reduce harms (e.g., discrimination). Community interventions address norms and the environment. Institutional interventions alter physical spaces, policies, and investments under the control of colleges and universities. Public policy interventions shape colleges’ abilities to invest in and support student mental health.
I focus on scientific evaluations of interventions, but I note there are additional bodies of evidence that address the context and conditions under which effective interventions can be developed, implemented, and sustained. I encourage higher education researchers and practitioners to also consider the evidence base from implementation science, prevention science, organizational change and development, and literature covering effective partnerships (e.g., community-based participatory research) when designing, implementing, and evaluating interventions to address student mental health.

I do not cover clinical services such as psychotherapy and psychiatric medication. Though these are core components of current approaches to student mental health, their evidence base is extensively documented elsewhere, with well-established clinical guidelines from professional organizations (e.g., American Psychiatric Association, American Psychological Association) (Cuijpers et al., 2016; Francis & Horn, 2017; Huang, Nigatu, Smail-Crevier, Zhang, & Wang, 2018; Kay & Schwartz, 2010; Riba & Menon, 2021). Analysis of data from the Center for Collegiate Mental Health has shown that routine psychotherapy care in college counseling centers is generally effective, although there is room for improvement (McAleavey et al., 2019). Providers skilled at serving students with marginalized identities are needed (Riba & Menon, 2021). Integration of primary care and mental health care in collaborative care models is a recent advancement, for college students, and others (Chung et al., 2011). Ongoing research on “traditional” care models is needed; however, I expand this research by focusing on public health interventions for addressing college student mental health.

**Methodological Approach**

I conduct an integrative review to guide the summary and analysis of a vast, multidisciplinary literature (Sutton et al., 2019). I employ bibliographic database searching of several databases including PubMed, PsycINFO, ERIC, and Google Scholar. All searches included the outcomes (e.g., mental health, depression, anxiety, psychological distress) and settings (e.g., college, university, higher education) of interest. An iterative, collaborative process was used to identify and categorize intervention types within socioecological levels whereby an initial phase of searching identified intervention types within each level and a second phase of searching included keywords relevant to each identified intervention type to review the evidence-base pertaining to that type of intervention. For example, an initial search for interpersonal interventions in college, university, or higher education settings focused on mental health,
depression, anxiety, eating disorders, psychological distress or psychological wellbeing identified several intervention types within this socioecological level. A second phase of searching, using keywords such as peer educators, peer education, peer interventions, family, faculty, staff, social support, and belonging then identified the evidence-base for these types of interventions. Search methods additionally included reference list checking, contact with experts, and identifying articles based on personal knowledge (Cook, Purdie-Vaughns, Meyer, & Busch, 2014; Grant & Booth, 2009; Sutton et al., 2019). Where meta-analyses and reviews existed (e.g., for individual-level interventions), these were reviewed and summarized and the primary literature was identified and reviewed as necessary (e.g., to identify study sample characteristics). The overall aim was to identify the types of interventions that have been attempted, and the strength and quality of evidence for these intervention types. A systematic review of every intervention was beyond the scope of the research and thus the specific studies included should be considered representative, not exhaustive (Cook et al., 2014).

**Individual-Level Interventions**

The most common strategies employed by colleges to address student mental health are those that target individual students’ knowledge, attitudes, coping and help-seeking behaviors, risk and protective factors, and mental health symptoms. These are also the most commonly evaluated programs in the empirical literature. A robust and growing evidence-base supports the efficacy of such interventions (Buchanan, 2012; Cimini & Rivero, 2018a; Conley, Durlak, & Kirsch, 2015; Conley, Durlak, Shapiro, Kirsch, & Zahniser, 2016; Reavley & Jorm, 2010; Regehr, Glancy, & Pitts, 2013; Rith-Najarian, Boustani, & Chorpita, 2019; Shiralkar, Harris, Eddins-Folensbee, & Coverdale, 2013; Yager & O’Dea, 2008). Many types of interventions target individual factors, each with a different degree of evidence. Key types include:

- **Psychoeducational interventions:** provide information targeting students’ knowledge of and attitudes toward stress, coping, mental health symptoms, and mental health resources.
- **Coaching interventions:** change behavior through goal-directed, collaborative strategies, often through motivational interviewing.
- **Skill-training interventions:** teach students social, emotional, and coping skills.
• **Identity-support interventions**: support students’ sense of identity, including but not limited to racial, ethnic, sexual, or gender identity.

While there is potential for overlap across these intervention types (e.g., skill-training interventions that include psychoeducation), they represent largely distinct categories in practice (e.g., mental health coaching interventions rarely focus on skill-training). I review evidence for these individual-level intervention types in the section that follows. Robust reviews by the *Improving Mental Health and Promoting Adjustment through Critical Transitions Lab*, led by Dr. Colleen Conley, contribute significantly to this section.

**Psychoeducational Interventions**

Psychoeducational interventions are didactic programs focused on providing information (Durlak, 1997). Within mental health, their goal is increasing mental health literacy—students’ knowledge, attitudes, and beliefs about mental health disorders and treatments (Schwartz & Davar, 2018). They are based on the premise that providing information will motivate and enable individuals to act effectively to prevent or respond to various negative outcomes (Conley et al., 2015). For example, educating students about common pressures they are likely to encounter in college and healthy coping strategies is expected to help reduce future stress (e.g., Walker & Frazier, 1993). Providing symptom information on mental health disorders and where to turn for support is expected to facilitate help-seeking when a student experiences depression or anxiety (Xu et al., 2018).

Although psychoeducation is common in higher education, the evidence for effectiveness is generally weak. Across studies, settings, formats, and populations, psychoeducational interventions for mental health are minimally effective in improving attitudes, changing behaviors, fostering skills, or preventing problems (Conley, Durlak, & Dickson, 2013; Conley et al., 2015, 2016; Corrigan, Morris, Michaels, Rafacz, & Rüsch, 2012; Durlak, 1997; Stice, Shaw, & Marti, 2007; Yager & O’Dea, 2008; Yamaguchi et al., 2013).

One common approach addresses stigma surrounding mental health disorders. A meta-analysis of 72 interventions implemented in and outside of higher education to reduce mental health stigma found weak effects of traditional didactic education on changing attitudes (d=.21) and behavioral intentions (d=.10), assessed via randomized controlled trials (RCTs) (Corrigan et al., 2012). These findings were replicated in a systematic review of short-term anti-stigma
interventions (three sessions or fewer) for college students (Yamaguchi et al., 2013). Yamaguchi and colleagues (2013) reviewed 35 RCTs, clinical controlled trials, and controlled before and after studies and found that improvements in knowledge and attitudes were sustained over medium-term (4 weeks or less) in only half of the studies. They concluded, as have others, that interventions involving exposure to someone with a mental health disorder are more effective than education-only interventions (Clement et al., 2013; Corrigan et al., 2012; Thornicroft et al., 2016; Yamaguchi et al., 2013). However, regardless of social contact, there was no evidence for effectiveness long-term or on actual behaviors and methodological weaknesses in the reviewed studies were common (Mehta et al., 2015; Yamaguchi et al., 2013). Finding only small short-term impacts on attitudes, little evidence for impact on behavior or behavioral intentions, and methodological weaknesses is common across psychoeducational anti-stigma interventions adopted in a wide range of settings with a wide range of participants (Clement et al., 2013; Corrigan et al., 2012; Mittal, Sullivan, Chekuri, Allee, & Corrigan, 2012; Thornicroft et al., 2016). For example, while Corrigan and colleagues’ (2012) meta-analysis of 72 interventions found large effects of contact interventions in changing attitudes in the short term (d=.63 compared to .21 for psychoeducation only), they found only small effects on behavioral intentions (d=.27 compared to .10 for psychoeducation only). Small effects on behavioral intentions and other evidence of mixed or null associations between stigmatizing attitudes and mental health service use among college students (Eisenberg, Downs, et al., 2009; Golberstein, Eisenberg, & Gollust, 2009; Gulliver, Griffiths, Christensen, & Brewer, 2012; Han, Chen, Hwang, & Wei, 2006) suggests that anti-stigma programs that target behavioral outcomes influenced by the stigmatization process will be necessary for connecting individuals to care and ensuring the inclusion of students with a mental illness (Stuart, 2016; Yamaguchi et al., 2013).

Psychoeducational interventions are also largely ineffective for developing social-emotional skills and improving mental health in college students. Conley (2015) reviewed evaluations of 113 social-emotional learning-related prevention and promotion programs: of the 28 didactic-only (not skill-oriented) interventions identified, only four were successful (Jones, 2004; MacLeod, Coates, & Hetherly, 2008; Mattanah et al., 2010; Walker & Frazier, 1993). In a systematic review of controlled universal mental health prevention programs (targeting students without any presenting problems), psychoeducation interventions yielded smaller average effects (effect size (ES)=0.13) and were effective for fewer outcomes than skill-based
interventions with supervised skills practice (ES=0.45). In a meta-analytic review of technology-delivered mental health interventions for higher education students, psychoeducation programs were the least effective (Conley et al., 2016). Similar findings have been noted in reviews of interventions addressing factors related to student mental health such as sleep (Dietrich, Francis-Jimenez, Knibbs, Umali, & Truglio-Londrigan, 2016; Friedrich & Schlarb, 2018). For example, a systematic review demonstrated that interventions providing sleep hygiene education had small effect sizes on sleep and mental health, whereas cognitive-behavioral and relaxation techniques had medium to large effects on those outcomes (Friedrich & Schlarb, 2018). Eating disorders, like sleep problems, are common in college students, connected to additional mental health problems, and often specifically targeted for prevention. Available evidence (in and outside of higher education) suggests that psychoeducational content may be the least useful approach and in some cases might undermine relevant outcomes (Stice et al., 2007; Yager & O’Dea, 2008).

Most reviews are critical of the methodological quality of included psychoeducational intervention studies and note a need for more RCTs, better and validated outcome measures, and longer-term follow-up (Clement et al., 2013; Thornicroft et al., 2016; Mehta et al., 2015; Mittal et al., 2012; Schachter et al., 2008; Stuart, 2016; Yamaguchi et al., 2013). They also note the poor quality of studied interventions, which often lack theoretical grounding, adequate training, manuals, or fidelity checks (Clement et al., 2013; Corrigan et al., 2012; Mehta et al., 2015; Mittal et al., 2012). Overall, there is enough evidence to conclude that psychoeducation is not effective as an independent or primary approach to mental health interventions in higher education (Conley et al., 2015, 2016, 2017; Conley, Travers, & Bryant, 2013; Durlak, 1997).

**Coaching Interventions**

An emerging class of interventions involving motivational interviewing (MI) and coaching attempt to change behaviors related to mental health more directly. MI is a “goal-directed, collaborative form of counseling that leverages a client's autonomy to strengthen [their] intrinsic motivation to change” (Hettema, Steele, & Miller, 2005; Hom, Stanley, & Joiner, 2015, p. 34; Lundahl et al., 2013). It is based on a participant-centered, empathetic approach that incorporates techniques—developing discrepancy between participant behaviors and values, reflective listening, supporting positive actions, and rolling with resistance—to guide the participant beyond ambivalence toward lifestyle changes (Rash, 2008). These might include increasing health behaviors (sleep, exercise) or decreasing risk behaviors (smoking).
In higher education settings, MI has been implemented by both trained clinicians and peers (ACHA, 2020). The technique has primarily been used to address substance use (Carey, Henson, Carey, & Maisto, 2007; Samson & Tanner-Smith, 2015), but it is increasingly used in mental health, wellness, help-seeking, depression, and suicide interventions. For example, MI has empirical support for increasing treatment engagement for mental health disorders and suicide (Baker & Hambridge, 2002; Britton, Patrick, Wenzel, & Williams, 2011; Humfress et al., 2002; King et al., 2015). Incorporating MI principles in an online intervention for college students who screened positive for suicide risk was found, through a pilot RCT, to enhance readiness to engage in mental health treatment above and beyond a personalized feedback-only intervention (King et al., 2015). However, the researchers called for further testing of the intervention's long-term effects.

Researchers hypothesize MI may be a helpful approach for facilitating mental health help-seeking in men in particular (Sagar-Ouriaghli, Godfrey, Bridge, Meade, & Brown, 2019); a gender-related pattern is also observed in studies of academic coaching and college student success (Bettinger & Baker, 2014). A pilot study of a single-session MI intervention for college men with internalizing symptoms found a significant effect on seeking help from parents and a trend for seeking professional help at 2-month follow-up (Syzdek, Green, Lindgren, & Addis, 2016). Interestingly, a systematic review and meta-analysis of 98 mental health help-seeking interventions (some implemented with college students) found that interventions using MI were only beneficial at long-term follow-up, indicating that it may take time for acquired motivation and skills to translate into real-life help-seeking decisions (Xu et al., 2018).

In higher education settings, MI is increasingly being used as a key component of wellness coaching (ACHA, 2020). Wellness coaching is described as an “innovative approach for promoting mental health and academic achievement among all students” (Gibbs & Larcus, 2014, p. 23). The method is based on a holistic model of wellness, is grounded in positive psychology, and supports students’ ability to thrive academically, socially, and emotionally (Gibbs & Larcus, 2014; Schreiner, 2010) through the provision of resources, coping skills, and wellness-oriented goal-setting/attainment opportunities (ACHA, 2020). Formal evaluations are needed to determine its effectiveness in promoting mental health, preventing mental health problems, fostering help-seeking, and supporting student wellness across multiple domains. The
use of peers as coaches may make it a cost-effective, scalable model to implement (ACHA, 2020).

**Skill-Training Interventions**

In addition to psychoeducation, skill-training is a primary strategy that has been used with college students to promote mental health and prevent problems. Extensive evidence suggests that skill-training interventions effectively promote positive adjustment and prevent negative adjustment in children, adolescents, and college students (Cimini & Rivero, 2018a; Conley et al., 2015; Durlak, 1997; Howard, Schiraldi, Pineda, & Campanella, 2006; McDonald, Pritchard, & Landrum, 2006; Stice et al., 2007; Yager & O’Dea, 2008). The approach is:

“based on the premise that the behavioral skills that may be instrumental in preventing negative outcomes...must be systematically taught to participants along with training on how to apply new skills. Depending on their specific aims, interventions typically emphasize procedures such as cognitive restructuring, relaxation, mindfulness, conflict resolution, various coping strategies...” (Conley et al., 2015, p. 488).

Supervised practice—behavioral rehearsal and supportive feedback— is an essential, but not universally employed, component of skill-training interventions (Conley, 2015; Conley et al., 2015). Extensive research documents the importance of supervised practice over multiple sessions for learning new skills in college populations and adolescent, young adult, and adult populations more broadly (Conley et al., 2015). Reviews of college mental health interventions find 22-27% of skill-training programs do not include this component (Conley, 2015; Conley et al., 2015).

While further research is warranted to understand the heterogeneity within supervised skill-training interventions, Conley et al.’s (2015) review of 103 controlled studies suggests they are demonstrably more effective (ES=.45) than psychoeducational (ES=.13) and skill-training without supervised practice (ES=.11) universal prevention interventions. Overall, skill-training interventions with supervised skill practice have moderate effects on reducing depression (ES=.39), anxiety (.55), stress (.55), and general psychological distress (.32) and enhancing social-emotional skills (.37), self-perceptions (.35), and academic behaviors and performance (.30) (Conley et al., 2015). Supervised skill-training interventions outperformed other intervention types in terms of overall effect size, number of outcome areas with significant effects, and sustained impact over time (Conley et al., 2015). The effectiveness of skill-training interventions with supervised practice in preventing psychological distress among college
students is impressive compared to other universal prevention programs and treatments (Conley et al., 2015). For example, Conley et al. (2015) found supervised skill-training interventions’ mean effect on preventing anxiety to be “comparable to results… in meta-analyses of treatment for anxiety problems” (p. 500). These interventions have also been found to be effective for improving social-emotional skills and adjustment in higher education settings (Conley, 2015; Schwartz & Davar, 2018). In a review of 113 social-emotional learning-related prevention and promotion programs in higher education, Conley (2015) found that skill-oriented programs with supervised practice are effective for promoting social-emotional adjustment in the short-term, whereas skill-training programs without supervised practice are ineffective.

Several types of skill-training interventions exist, with varying degrees of effectiveness. First, cognitive-behavioral interventions focus on monitoring cognitions—replacing disruptive and irrational thinking with more adaptive patterns—and using these cognitions effectively to change behaviors and emotions (Conley et al., 2015; Howard et al., 2006). While somewhat variable in their methods, cognitive-behavioral interventions promote coping skills and skills such as identifying triggers of stress, restructuring cognitions, and managing stress (Conley, 2015). For example, a 6-week intervention focused on teaching college students self-awareness (of thoughts, bodily sensations, and their connection), self-management (e.g., challenging cognitive distortions), and decision making (e.g., goal-setting) skills through guided weekly practice and reminders, daily log keeping, and supervised practice (Deckro et al., 2002). It reduced psychological distress, state anxiety, and perceived stress in an RCT (Deckro et al., 2002). Cognitive-behavioral interventions are relatively common: 36% of universal mental health prevention programs for higher education students identified by Conley and colleagues (2015) were classified as such.

Meditation interventions involve a wide range of meditation techniques, including transcendental meditation and yoga, to enhance self-awareness and self-management. These practices, which often involve focusing on a single item (e.g., breath, sound, body part) and disregarding distracting thoughts or sensations, are thought to enhance one’s ability to manage stress through physiological effects such as reduced arousal and increased relaxation (Conley, 2015). Nearly 10% of universal mental health prevention programs for higher education

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1 Outcomes assessed immediately following the intervention period
reviewed by Conley and colleagues (2015) were meditation interventions. Mindfulness interventions target similar outcomes but rely on a different set of techniques, such as those in the Mindfulness Based Stress Reduction program developed by Kabat-Zinn (1990), to train the mind to function in a nonjudgmental and present manner. Mindfulness interventions are somewhat less common (8.7% of universal prevention interventions reviewed by Conley et al., 2015), but are highly effective (Conley et al., 2015). *Learning to BREATHE* is one example of an evidence-based multi-session mindfulness program that has improved psychological wellbeing among first-year college students (Dvořáková, Greenberg, & Roeser, 2019; Mahfouz et al., 2018; Tang, Broderick, Bono, Dvoráková, & Braver, 2020). Finally, relaxation interventions teach students (using tools like biofeedback) strategies such as progressive muscle relaxation, guided imagery, and breathing techniques to reduce psychological distress outcomes, including physiological indicators of stress (Conley, 2015). Almost 17% of universal prevention interventions reviewed by Conley et al. (2015) were identified as relaxation programs. Finally, some skill-training programs focus on interpersonal skills; these will be discussed below in the interpersonal section.

Several reviews have compared effectiveness of various skill-training intervention types among college students. Mindfulness programs with supervised practice are the most successful. They most effectively improve social-emotional skills (e.g., coping, positive thinking, emotional and stress management) and enhance self-perceptions (e.g., self-esteem, self-actualization) (Astin, 1997; Conley, 2015; Oman, Shapiro, Thoresen, Plante, & Flinders, 2008; Rosenzweig, Reibel, Greenson, Brainard, & Hojat, 2003; Sears & Kraus, 2009; Shapiro, Brown, & Biegel, 2007; Shapiro, Oman, Thoresen, Plante, & Flinders, 2008; Shapiro, Schwartz, & Bonner, 1998). Looking at interventions evaluated in at least three trials, mindfulness programs with supervised practice improved emotional skills 78% of the time (Conley, 2015).

Mindfulness interventions are also highly effective at reducing emotional distress (Conley, Durlak, et al., 2013; Conley et al., 2015; Regehr et al., 2013). Conley et al.’s (2013) review of universal promotion and prevention programs for higher education students identified 7 mindfulness interventions among the 83 controlled programs examined; all effectively modified assessed outcomes. Recent research suggests they also advance positive mental health (flourishing) (Long, Halvorson, & Lengua, 2021). While rare among indicated prevention programs for college students (1 of 79 controlled indicated interventions identified) (Conley et
al., 2017), reviews indicate that mindfulness interventions have been effective in reducing mental health symptoms in clinical and medical populations (Hofmann, Sawyer, Witt, & Oh, 2010; Keng, Smoski, & Robins, 2011) and reducing stress, enhancing wellbeing, and improving academic outcomes in a variety of settings (Chiesa & Serretti, 2009; Davidson et al., 2003; Eberth & Sedlmeier, 2012), including schools (Zenner, Herrleben-Kurz, & Walach, 2014). A review of psychological interventions to improve sleep in college students also found large positive effects of mindfulness interventions on mental health, suggesting they might be important for addressing comorbid mental health and sleep problems (Friedrich & Schlarb, 2018). For example, Greeson and colleagues (2014) found college students in the popular “Koru” mindfulness program (four 75-minute sessions) had fewer sleep problems, less stress, and more mindfulness and self-compassion compared to those in the waitlist control group after 4 weeks. Research from outside of higher education provides guidance on the importance of and strategies for developing culturally-responsive mindfulness interventions (Duane, Casimir, Mims, Kaler-Jones, & Simmons, 2021; Proulx et al., 2018; Watson-Singleton, Black, & Spivey, 2019; Watson-Singleton, Pennefather, & Trusty, 2021).

Cognitive-behavioral and relaxation interventions with supervised practice show promise for improving social-emotional skills and reducing psychological distress in college students (Conley, 2015; Regehr et al., 2013). They improved social-emotional outcomes 33-66% of the time in Conley’s (2015) review of interventions evaluated in at least three trials. Cognitive-behavioral interventions impact similar social-emotional outcomes as mindfulness programs and also strengthen interpersonal relationships (Conley, 2015). Relaxation interventions reduce emotional and physiological distress outcomes (Conley, 2015). More common than mindfulness programs among indicated mental health interventions for college students, Conley et al. (2017) found social skill-training interventions (see below) yielded the highest effect sizes but cognitive-behavioral and relaxation interventions followed. Consistent with previous reviews and meta-analyses, cognitive-behavioral interventions have been identified as the most effective approach for treating sleep disorders in college students (Friedrich & Schlarb, 2018; Koffel, Koffel, & Gehrman, 2015), but relaxation interventions, like mindfulness interventions, had the largest effects on the mental health outcomes in these studies (Friedrich & Schlarb, 2018).

In contrast to mindfulness, cognitive-behavioral, and relaxation interventions, meditation programs with supervised practice have minimal evidence for effectiveness (Conley, 2015;
Conley et al., 2015, 2017), and they are ineffective at improving emotional skills in college students (Conley, 2015; Kindlon, 1983; Zuroff & Schwarz, 1978). Overall, further research is needed to understand heterogeneity and key elements for effectiveness within the skill-training intervention category. But substantial evidence demonstrates that mindfulness, cognitive-behavioral, and relaxation skill-training interventions (with supervised practice) may be powerful tools for promoting mental health and preventing mental health problems among college students.

**Identity-Support Interventions**

Interventions targeting factors related to students’ identity are potentially powerful but mostly unexplored for impacting mental health. Experiencing interpersonal, communal, and structural harms, such as racism and discrimination, is unfortunately a common part of college for SOC, sexual and gender minorities, students with disabilities, and others. These harms negatively impact student mental health (Goodwill, Taylor, & Watkins, 2021; Hwang & Goto, 2008; Pieterse, Carter, Evans, & Walter, 2010; Woodford, Kulick, Sinco, & Hong, 2014). College leaders have many opportunities to intervene to reduce such experiences; these interventions are discussed in the following sections. However, there is evidence that individual factors, such as racial and cultural socialization (e.g., cultural pride), private and public regard, and identity salience, moderate the relationship between discrimination and mental health consequences (Keels et al., 2017; Lee, 2005; Reynolds & Gonzales-Backen, 2017; Umana-Taylor, Tyes, Toomey, Williams, & Mitchell, 2015). For example, research suggests that positive feelings about one’s racial-ethnic group (high private regard) and recognition of negative societal perceptions of one’s racial-ethnic group (low public regard) may protect Black and Latinx college students from the negative mental health repercussions of experiencing racial-ethnic discrimination (Sellers et al., 2003; Sellers, Copeland-Linder, Martin, & Lewis, 2006). In samples of both adolescents and young adults, greater ethnic-racial socialization messages have been found to buffer against the negative effects of experiencing discrimination (Reynolds & Gonzales-Backen, 2017). In a longitudinal study, empowered racialization messages (warnings about discrimination combined with strategies for overcoming racial prejudice) received in late adolescence partially buffered respondents against the mental health consequences of racial discrimination at age 20-22 (Granberg, Edmond, Simons, Lei, & Gibbons, 2012). For lesbian, gay, bisexual, and queer (LGBQ) college students, self-acceptance (self-esteem and internalized
identity pride) mediates the pathway from discrimination to psychological distress for heterosexism and microaggressions (Woodford, Kulick, et al., 2014).

I am not aware of interventions evaluated in the empirical literature to promote these protective factors among college students, but scholars have suggested the value of doing so in clinical settings (e.g., Reynolds & Gonzales-Backen, 2017) and interventions with younger adolescents suggest the value of enhancing such identity assets (Anderson, McKenny, & Stevenson, 2019). Interventions in this arena might also aim to intervene with mediators between racism, discrimination, and mental health. For example, “internalized racial oppression, adopting the negative beliefs about one's group, is one pathway through which racism affects mental health” (Banks et al., 2021, p. 89). Banks and colleagues (2021) piloted a group-based intervention for Black women (including eight college students) and found that employing techniques from Acceptance and Commitment Therapy decreased internalized racial oppression and shame, and psychological distress. While priority should be placed on eliminating bias, racism, and discrimination, in the meantime, more work is needed to develop and test interventions to protect students from the mental health consequences of these harms.

**Delivery Format**

Interventions targeting individual-level factors, as reviewed above, have been delivered in various formats: individually or in group-settings, in-person or online, through one or repeated sessions, and by trained individuals or self-administered. Not all intervention reviews delineate whether interventions were administered to individuals or in groups. However, Conley et al. (2017) found that across indicated face-to-face mental health interventions, “individual interventions (ES = 1.08) yielded larger effects than group interventions (ES = 0.60), although both were associated with positive effects” (p. 133). Across studies and outcomes, face-to-face mental health interventions are generally more effective than technology-delivered interventions (TDI) in higher education for both behavior change and increasing help-seeking (Xu et al., 2018) and universal and indicated prevention (Conley et al., 2016, 2017; Rith-Najarian et al., 2019). The mean effect size for universal TDIs (0.21; Conley et al., 2016) is significantly lower than universal face-to-face interventions (0.45; Conley et al., 2015) and face-to-face interventions positively impact a greater number of outcomes. Similarly, the mean ES for indicated skill-training TDIs (0.39; Conley et al., 2016) is significantly lower than indicated skill-training face-to-face interventions (0.64; Conley et al., 2017), and face-to-face interventions positively impact
a greater number of outcomes. The mean ESs for indicated face-to-face interventions are 1.74 to 2.56 times higher than the respective ESs for TDIs (0.73 vs. 0.42 for depression, 0.67 vs. 0.30 for anxiety, and 0.46 vs. 0.18 for general psychological distress) (Conley et al., 2016). While face-to-face interventions are overall more effective than TDIs, there is growing evidence that both universal and indicated TDIs achieve some positive effects among higher education students (Conley et al., 2016; Davies, Morriss, & Glazebrook, 2014; Harrer et al., 2019; Lattie et al., 2019). More research is needed to fully assess their overall impact, value, and adoption in real-world scenarios. Some TDIs have potential to be easily accessible, cost-effective, and appealing to students who otherwise might not seek formal help while the technology required for others may be costly to maintain and pose barriers to access (Conley et al., 2016; Dunbar, Sontag-Padilla, Kase, Seelam, & Stein, 2018; Lattie et al., 2019; Ryan, Shochet, & Stallman, 2010).

The COVID-19 pandemic led to a dramatic increase in the use of TDIs, particularly the delivery of counseling sessions via videoconference technology (AUCCCD Directors Survey, 2020). Firm estimates of a parallel increase in use of other TDIs have not yet been published (e.g., self-guided therapy, mental health apps), but anecdotally it is obvious that colleges are increasing those offerings as well. Research to understand which TDIs are effective and how to engage students with those interventions will be enormously valuable in this new era.

An overall strength of individual-level interventions in higher education is their effectiveness in a limited amount of time. Across reviews of universal and indicated programs targeting social-emotional skills, help-seeking, and mental health symptoms, interventions are noted as being brief. The median duration of universal mental health prevention programs in higher education is just 10 hours (range: 1-46 hours) (Conley et al., 2015). The success of higher education mindfulness programs in strengthening social-emotional skills is celebrated as “impressive given their brevity” (Conley, 2015, p. 204). These programs are longer, on average, than other prevention programs in higher education (30 hours of intervention time over 3-10 weeks) but short compared to the multi-year programs for effectively addressing social-emotional skills in preschool and elementary students (CASEL, 2012). Furthermore, length is not a strong predictor of intervention success in higher education. Duration (number of hours) does not predict the effectiveness of TDIs (Conley et al., 2016), and brief indicated face-to-face interventions are as effective as longer ones (Conley et al., 2017). For instance, multi-session eating disorder programs (implemented in and outside of higher education) only produce
significantly stronger intervention effects than single-session programs for one of six outcomes (Stice et al., 2007).

**Future Research**

In summary, there is limited evidence of effective programs to sustainably reduce stigma, reduce stigma-related discrimination, and increase help-seeking but strong evidence for effective universal and indicated mental health prevention programs in higher education in terms of enhancing social-emotional skills and reducing mental health symptoms and distress. Research is needed to identify the active ingredients of interventions, the range of outcomes that can be expected for different student groups in the immediate and longer term, and how best to integrate preventive services at more institutions of higher learning so a greater number of students can benefit (Conley et al., 2015, 2017; Hom et al., 2015; Mann, Haas, Mehlum, & Phillips, 2005; Sagar-Ouriaghli et al., 2019; Weisz, Sandler, Durlak, & Anton, 2005). Some existing distillation research provides a starting point for identifying intervention active ingredients (see Table 2.1).

Intervention studies would be strengthened through more objective and diverse outcome measures assessed over the long term (Christensen, Pallister, Smale, Hickie, & Calear, 2010; Conley et al., 2015, 2016, 2017; Friedrich & Schlarb, 2018; Thornicroft et al., 2016; Winzer et al., 2018). Help-seeking, coping behaviors, sleep, mental health, and academic outcomes could and should be measured more objectively (Conley et al., 2015; Friedrich & Schlarb, 2018; Hom et al., 2015). Researchers have identified mismatches between outcomes targeted by and impacted through interventions, as well as broad potential outcomes from similar intervention techniques (Conley, 2015; Conley et al., 2017; Rith-Najarian et al., 2019). Widening the set of outcomes objectively measured (e.g., social and emotional skills, interpersonal relationships, physical health, academic performance, retention, substance use) will not only help to identify the interventions most effective for addressing the full range of desired outcomes in higher education (health and academic) but also enable calculating the cost-effectiveness of such programs (Conley et al., 2015; Thornicroft et al., 2016; Weisz et al., 2005). Furthermore, lack of follow-up and evidence of intervention durability limits current stigma, help-seeking, and universal and indicated prevention programs (Conley et al., 2015, 2016, 2017; Xu et al., 2018; Yamaguchi et al., 2013) and should be addressed. For example, Conley and colleagues (2015) found that just 30 of 103 reviewed universal prevention programs assessed outcomes at any follow-up; longer follow-up periods were associated with poorer outcomes. This suggests
attention should be paid to whether intervention effects wear off over time or if learned skills need practice and reminders to be maintained.

Table 2.1 Common Intervention Ingredients of Evidence-Based Programs

<table>
<thead>
<tr>
<th>Intervention Type</th>
<th>Active Ingredients in Effective Evidence-Based Programs</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescent Health Promotion</td>
<td>Problem solving, communication skills, &amp; insight building</td>
<td>(Boustani et al., 2015; Chorpita &amp; Daleiden, 2009; Chorpita, Daleiden, &amp; Weisz, 2005)</td>
</tr>
<tr>
<td>Children Mental Health Service Engagement</td>
<td>Assessment &amp; accessibility promotion</td>
<td>(Becker, Boustani, Gellatly, &amp; Chorpita, 2018; Lindsey et al., 2014)</td>
</tr>
<tr>
<td>Prevention Programs for reducing depression, anxiety and/or stress in university students</td>
<td>Physiologically oriented skills (e.g., relaxation, physical exercise, biofeedback) &amp; cognitive monitoring/restructuring</td>
<td>(Rith-Najarian et al., 2019)</td>
</tr>
<tr>
<td>Enhancing men’s mental health help-seeking</td>
<td>Role models to convey information, psychoeducational material to improve mental health knowledge, assistance with recognizing &amp; managing symptoms, active problem-solving tasks, motivating behavior change, signposting services, &amp; content built on positive male traits (e.g., responsibility and strength)</td>
<td>(Sagar-Ouriaghli et al., 2019)</td>
</tr>
</tbody>
</table>

Across all types of individual-level mental health interventions in higher education, there is a need to better understand for whom the interventions work and to identify effective interventions for the full range of students and contexts in higher education. Multiple reviews identify mostly female samples in studies of higher education mental health programs (Conley et al., 2015, 2016; Davies et al., 2014; Farrer et al., 2013; Regehr et al., 2013; Rith-Najarian et al., 2019; Yamaguchi et al., 2013). The gender imbalance in reviewed studies is more extreme than the disproportionate rate of mental health symptoms observed among women compared to men (i.e., there is unmet need among men) (Lipson et al., 2016; Pedrelli, Borsari, Lipson, Heinze, & Eisenberg, 2016). The binary treatment of male/female in reviews and evaluations also neglects transgender and gender diverse college students who face a disproportionate burden of mental health concerns (Lipson, Raifman, et al., 2019). While there is evidence that some higher education interventions are equally effective across genders (Conley et al., 2017), other research suggests that gender may moderate intervention acceptability and effectiveness, especially for stigma, help-seeking, and suicide prevention programs (Conley et al., 2016; Gronholm, Nye, & Michelson, 2018; Klimes-Dougan, Klingbeil, & Meller, 2013; Rith-Najarian et al., 2019; Sagar-
Ouriaghli et al., 2019; Thornicroft, 2006; Yamaguchi et al., 2013). For example, a review of universal suicide prevention programs in high schools identified potential harmful effects in males (Klimes-Dougan et al., 2013).

In addition to examining how gender moderates intervention acceptability and effectiveness, research is needed to understand the influence of other student characteristics. Far too many intervention studies in higher education do not report student characteristics (e.g., race, sexuality, first-generation status, primary language, citizenship, disability status) or conduct subgroup analyses (Conley et al., 2015, 2016, 2017; Yamaguchi et al., 2013). Conley and colleagues (2015, 2017) found that less than one-third of universal and indicated prevention intervention studies reported on student race or ethnicity. Encouragingly, among those that did, having a greater number of ethnic minority participants was associated with larger intervention effect sizes (Conley et al., 2015), which has not been found consistently in prevention research (Weisz et al., 2005). In addition, 35 percent of students in face-to-face indicated prevention studies were non-Caucasian, which is relatively close to the demographics in the U.S. higher education system (Conley et al., 2017; NCES, 2019).

Initial research suggests other moderators of intervention effectiveness, such as students’ year in school and degree program, should be explored further. For example, Yamaguchi and colleagues (2013) found stigma interventions with medical students were uniquely ineffective, raising the importance of specifically testing intervention effectiveness for students in helping professions (Yamaguchi et al., 2013). Other researchers have compared the effectiveness of mental health and stress reduction programs with undergraduates and graduates (Conley et al., 2015; Yusufov, Nicoloro-Santabarbara, Grey, Moyer, & Lobel, 2018). Conley and colleagues (2015) found universal prevention interventions conducted with graduate and professional students appear to have the largest effects (ES=0.53), while those targeting first-year undergraduates are least successful (ES=0.11). Full reporting on student characteristics should be routine and researchers should compare benefits across groups whenever possible.

Further research is also needed to understand the impact of who delivers individual-level mental health interventions. There is some evidence that program quality is closely tied to the training and preparedness of the individuals delivering it (Meiklejohn et al., 2012; Schwartz & Davar, 2018). But in their review of face-to-face indicated interventions, Conley and colleagues (2017) found almost two-thirds of programs were facilitated by paraprofessionals (including
university staff, graduate trainees, or peers) and that these programs were as effective as those delivered by fully trained mental health staff. On the other hand, eating disorder prevention programs led by trained interventionists are often more effective than those delivered by staff and faculty (Stice et al., 2007). Wellness coaching is currently being delivered by health promotion staff and trained students; research is needed to evaluate whether both are effective (ACHA, 2020).

More research is also needed across settings in higher education. Community college students, for example, are grossly underrepresented in studies (Conley, 2015), despite the fact that they comprise 34% of the college population (NCES, 2019) and have greater needs but more limited access to mental health supports (Eisenberg, Goldrick-Rab, Ketchen Lipson, & Broton, 2016; Katz & Davison, 2014; Lipson, Phillips, Winquist, Eisenberg, & Lattie, 2021). Researchers should also evaluate other campus characteristics that may shape intervention effectiveness, such as the racial composition of faculty, staff, and students and the degree to which the campus is residential.

Another important area for future research is identifying keys to successful adoption, implementation, scaling, and sustainment of individual-level mental health interventions in higher education. Most research to date has focused on outcome efficacy (Cimini & Rivero, 2018; Conley et al., 2015; Lattie et al., 2019). Several reviews of individual-level mental health interventions note huge inconsistencies in how student adherence is reported and measured (Conley et al., 2015, 2016; Rith-Najarian et al., 2019) and little attention to participant satisfaction (Conley et al., 2017). Better understanding satisfaction, adherence, and achieved implementation is important for interpreting studies of effectiveness (Conley et al., 2016). Further study of fidelity, dosage, adaptation, and quality is also warranted (Conley et al., 2017). For example, Rash (2008) explored the challenges of implementing MI interventions in the college setting and noted that many evaluations do not describe treatment manuals or provider intervention-delivery fidelity, leading to weak internal validity. Overall, greater understanding of the factors contributing to long-term successful intervention adoption and implementation in higher education is needed (Cimini & Rivero, 2018; Conley et al., 2017; Lattie et al., 2019).

**Interpersonal Interventions**

Colleges actively employ many approaches that shape students’ interpersonal interactions, relationships, support, and skills (Kirsch et al., 2014). However, these are seldom
evaluated for their impact on student mental health. In this section, we review the evidence regarding efforts to shape peer, family, and instructor relationships, as well as student social skills and sense of belonging, to enhance student mental health. I defer discussion of gatekeeper training programs to the community intervention section that follows, since such programs are typically implemented community wide with the aim of changing the culture of college communities.

Peer Interventions

Peers impact student wellbeing in numerous ways, with well-documented effects on behavior, health, and academic outcomes (Astin, 1993; Kirsch et al., 2014; Kuh et al., 1991; Mayhew et al., 2016; Renn & Arnold, 2003; Tinto, 1993). Peers may be “the single most potent source of influence” on student affective and cognitive growth and development during college (Astin, 1993, 398; Kuh, 1993; Whitt, Edison, Pascarella, Nora, & Terenzini, 1999). They have been the focus of interventions aiming to enhance knowledge sharing, referral, peer counseling, and social support.

Peer Health Education. Most colleges have a peer health education program (Salovey & D’andrea, 1984; Wawrzynski, Loconte, & Straker, 2011), which is commonly seen as a cost-effective strategy for health promotion despite rarely being evaluated (Dubovi & Sawyer, 2018; Fennell, 1993; Shook & Keup, 2012; Wawrzynski & Lemon, 2021; Wawrzynski et al., 2011; White, Park, Israel, & Cordero, 2009). Nationally, peer educators increasingly receive mental health training and prioritize this topic in outreach (Wawrzynski & Lemon, 2021). Such training focuses on general mental health promotion more than suicide prevention, self-harm, or eating disorders (Wawrzynski & Lemon, 2021). In addition to sharing health information, peer educators also mentor, model healthy behaviors, promote positive decision-making, provide referrals, and offer personalized feedback to assist students in meeting health-related goals (Catanzarite & Robinson, 2013; Dubovi & Sawyer, 2018; Ebreo, Feist-Price, Siewe, & Zimmerman, 2002; Swarbrick, Murphy, Zechner, Spagnolo, & Gill, 2011; Wawrzynski & Lemon, 2019; White et al., 2009). This is thought to be uniquely effective coming from peers, resulting in positive peer pressure and attractive, approachable programming (Dubovi & Sawyer, 2018). Despite four decades of concern about the evidence base for peer health education (Fennell, 1993; Milburn, 1995; Salovey & D’andrea, 1984), it is growing slowly. There is evidence to suggest value in positively influencing substance use behaviors (White et al., 2009),
but less work has directly examined mental health benefits (Dubovi & Sawyer, 2019). Perhaps most promising is a large longitudinal study of students across 12 California colleges that found that increased familiarity and involvement with the peer organization Active Minds over the course of one academic year were associated with (a) increases in mental health perceived knowledge, (b) decreases in stigma, and (c) increases in helping behaviors (providing or enhancing access to emotional support and helping peers get professional help) (Sontag-Padilla et al., 2018). Active Minds uses a combination of peer education, support, modeling, and skill-training to shape student outcomes, but the research corroborates the benefits of having peers working actively to raise mental health awareness at colleges. Growing familiarity with Active Minds, even without involvement, was associated with reduced stigma and enhanced knowledge (Sontag-Padilla et al., 2018). Peer mental health organizations may have impact beyond directly involved students, perhaps by improving general student body views of mental health. This may be critical in increasing help-seeking (Sontag-Padilla et al., 2016, 2018).

Other evidence suggests that training enhances peer educators’ health-promoting knowledge, attitudes, and behaviors (Badura, Millard, Peluso, & Ortman, 2000; Dubovi & Sawyer, 2018; Heys & Wawrzynski, 2013; Newton, Ender, & Gardner, 2010; Sawyer, Pinciaro, & Bedwell, 1997; Wawrzynski & Lemon, 2021; Wawrzynski et al., 2011). Unfortunately, most evaluations of trainings’ effects on peer educators are not methodologically rigorous, lacking otherwise similar comparison groups and longer-term outcomes, thereby making definitive conclusions about efficacy elusive (Dubovi & Sawyer, 2018; Wawrzynski & Lemon, 2021). However, the growing evidence on peer education overall suggests some promise through these approaches, and student-run programs like Active Minds are not costly to institutions.

**Peer Support Interventions.** There is more research focused on an array of peer support programs. Across settings, significant research has demonstrated that peer counseling and group interventions are effective in improving a wide range of health outcomes among diverse populations (Davidson, Bellamy, Guy, & Miller, 2012; Ramchand et al., 2017; Webel, Okonsky, Trompeta, & Holzerner, 2010). There is a significant history of using peers to prevent the onset, reduce severity, or manage consequences of disease (Davidson et al., 2012; Ramchand et al., 2017), with perhaps particular importance for individuals with mental health conditions (Fuhr et al., 2014; Gidugu et al., 2015; Kirsch et al., 2014; SAMHSA, 2012). A review of trials evaluating use of paid peer supporters in non-college mental health settings found that peer-
delivered services were as good as those provided by staff, with perhaps greater enhancement of hope, empowerment, and quality of life (Bellamy, Schmutte, & Davidson, 2017). There is some evidence that peer counseling enhances social functioning, coping, and engagement with care (Chinman et al., 2014; Landers & Zhou, 2011). However, other research has found little or no evidence of positive effects on hospitalization, overall symptoms, or satisfaction with services (Lloyd-Evans et al., 2014). Inconsistent findings regarding the impact of peer counseling may be due to variation in intervention content, peer counselor training, trial populations, and study methodology (Lloyd-Evans et al., 2014). More clearly defined models of peer support and fidelity criteria for such interventions, along with more rigorous evaluations, will help shed light on the effect of such programs.

Mental health peer support programs at colleges vary in delivery methods, aims, training elements, and institutional “homes” (Caporale-Berkowitz, 2020; John et al., 2018; Kirsch et al., 2014). Some schools offer one-on-one counseling through training of selected students to provide unidirectional support to peer participants in-person or over the phone (Caporale-Berkowitz, 2020). Training length and form varies by institution but typically covers topics such as depression, anxiety, disordered eating, grief, substance use, and academic issues. Peer counselors are then available as a complement to counseling center services, via drop-in or appointment (Johnson & Riley, 2021). Some programs are closely affiliated with school counseling centers and marketed as such, while others are promoted as student-driven to increase perceived accessibility (Caporale-Berkowitz, 2020). Some take the form of peer coaching, with one-on-one assignments for an entire semester to improve academic and general performance (Caporale-Berkowitz, 2020). Despite the popularity of one-on-one peer support programs, evaluative research remains sparse. However, there are some promising findings. For example, comparison of matched universities in the United Kingdom with and without a peer program (which matched first-year students with upper-level mentors) showed that mentoring was associated with declines in negative affect and increases in social support over the first 10 weeks of the school year (Collings, Swanson, & Watkins, 2014).

As with peer educators, there is more evidence for beneficial impact on those trained to provide peer support (Bernecker, Williams, Caporale-berkowitz, Wasil, & Constantino, 2020; Hatcher, Shields, Wierba, Hatcher-Ross, & Hanley, 2014; Johnson & Riley, 2021). For example, after 6 weeks of work, students trained to provide mental health support through a student-run
mental health chat line showed less avoidance coping and greater sense of belonging to a community relative to untrained workers (Johnson & Riley, 2021). There were no differential changes in flourishing. The causal agent here is unclear, but the study does show that, on balance, being a peer supporter enhances rather than taxes the wellbeing of those who help others (Johnson & Riley, 2021). An RCT demonstrated that an online course to teach psychotherapy skills to nonprofessionals, including college students, decreased advice giving and increased open-ended questions, time spent listening, and helpfulness (Bernecker et al., 2020). Scalable online training with one-on-one practice among peers may provide an avenue for disseminating peer support skills on campus (Caporale-Berkowitz, 2020).

Group peer interventions are more commonly used and studied. They are led by peers or professionals and are both clinical and nonclinical in nature. Non-clinical examples include identity-based support groups that are not focused directly on mental health (e.g., LGBTQ support), preventive group interventions with peer leaders to support the transition to college, and peer-led support groups focused on identity, wellbeing, and day-to-day life. There are also traditional clinical support groups led by mental health professionals. High-quality studies of these programs in higher education remain limited (Caporale-Berkowitz, 2020; John et al., 2018), but some research has been conducted. Mostly qualitative research has identified ethnic, LGBTQ+, and minority-based student organizations as beneficial to student self-esteem, identity, integration, social support, belonging, and academic achievement (Baker, 2008; Conchas, 2001; Crisp, Taggart, & Nora, 2015; Fries-Britt, 1998; Guiffrida, 2003; Harper & Quaye, 2007; Museus, 2008; Nagasawa & Wong, 1999; Pitcher, Camacho, Renn, & Woodford, 2018). Mental health benefits of such peer groups have not been examined at the collegiate level but have been identified by quantitative research in secondary schools. For example, Gender and Sexualities Alliances (formerly: Gay Straight Alliances) are associated with less substance abuse, depression, and psychological distress, and fewer suicide attempts (Davis, Stafford, & Pullig, 2014; Goodenow, Szalacha, & Westheimer, 2006; Heck, Flentje, & Cochran, 2013; Poteat, Sinclair, Digiovanni, Koenig, & Russell, 2012).

One 9-week peer-led prevention group, focusing on transition to college and social support, has demonstrated mental health and academic benefits through rigorous evaluation (Lamothe et al., 1995; Mattanah et al., 2010; Mattanah, Brooks, Brand, Quimby, & Ayers, 2012; Pratt et al., 2000). An RCT showed that positive impacts on loneliness and grade point average
(GPA), which were unrelated to each other, did not vary by gender, race, or residential status (living on campus or commuting) (Mattanah et al., 2012). Another unusually well-evaluated group peer intervention for college students is the Body Project, a dissonance-based eating disorder prevention program for young women at risk for eating disorders due to body dissatisfaction (Stice, Shaw, Burton, & Wade, 2006). Also evaluated with RCTs, the intervention was efficacious in reducing risk factors, eating disorder symptoms, functional impairment, and future eating disorder onset over a 3-year follow-up (Becker, Smith, & Ciao, 2005; Becker et al., 2008; Halliwell & Diedrichs, 2014; Matussek, Wendt, & Wiseman, 2004; Mitchell, Mazzeo, Rausch, & Cooke, 2007; Stice, Marti, Spoor, Presnell, & Shaw, 2008; Stice et al., 2006). Similar effects were seen in a more ecologically valid context (existing college counselors recruited participants and delivered the intervention to at-risk young women), with long-term eating disorder symptom reductions (Stice, Butryn, Rohde, Shaw, & Marti, 2013; Stice, Rohde, Shaw, & Gau, 2011). Benefits were experienced by African American, Asian American, European American, and Hispanic female college students, regardless of participant-facilitator ethnic minority status match (Stice, Marti, & Cheng, 2014). In recognition of its unusually high level of evidence, the Body Project is listed as a Model Program in the Blueprints Programs for Healthy Youth Development (www.blueprintsprograms.org).

The Support Network is a peer-led support group model that has been adopted by several schools, but it has yet to be formally evaluated (Caporale-Berkowitz, 2020). Trained, peer facilitators lead weekly groups of six to ten students. Groups remain intact throughout the semester and foster discussion about college life and emotional wellbeing. They aim to establish meaningful relationships that persist beyond the group and enhance wellbeing by allowing students to both provide and receive support (Hogan, Linden, & Najarian, 2002). Their impact has not yet been rigorously assessed, but scalability has been demonstrated by the number of school adopters and students reached at participating institutions (e.g., 600 per semester at one large university). Program evaluation is urgently needed to ensure the students currently being served are benefitting from and not being harmed by participation. Online peer support interventions may also hold promise, particularly for student populations that are less likely to utilize mental health treatment (Watkins & Jefferson, 2013). For example, an online, social media-based intervention addressing mental health, manhood, and sustainable social support
with Black college men and their peers reduced depressive symptoms among participants in a mixed methods pre-to-post study (Watkins et al., 2020).

Evidence from clinical contexts outside of higher education provides strong support for the efficacy of peer-led support groups. There has been enough work to support two meta-analyses in depression, where peer-run support groups significantly reduce depressive symptoms, performing as well as professional-led interventions and significantly better than no-treatment conditions (Bryan & Arkowitz, 2015; Byrom & Byrom, 2018; Pfeiffer et al., 2012). Peer-led support groups enhance positive outlooks, empowerment, hope, and self-efficacy more than traditional services alone (Repper & Carter, 2011). In an RCT, patients working with them felt more liked, accepted, and understood than patients enrolled in traditional care (Sells, Davidson, Jewell, Falzer, & Rowe, 2006) and showed reduced depression relative to patients in typical group therapy (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011).

In conclusion, peer interventions appear to be a low-cost strategy with potential to contribute positively to college mental health efforts, benefitting peer leaders and participants alike. Further research is needed to fully investigate the benefits of the diverse ways to involve college peers in mental health promotion and intervention.

**Family Interventions**

Families also impact psychosocial adjustment and remain an important source of social support in college (Drum, Brownson, Denmark, & Smith, 2009; Hope & Smith-Adcock, 2015; Mattanah, Lopez, & Govern, 2015), though more work is needed to understand parental involvement and influence on college students (Harper, Sax, & Wolf, 2012; Kiyama & Harper, 2018; Wartman & Savage, 2008; Wolf, Sax, & Harper, 2011). College parent programs have existed since the 1920s, and over 90% of schools offer some sort of family programming (Self, 2013; Wartman & Savage, 2008), but this is often just a session during orientation, a newsletter, or a website (Coburn & Woodward, 2001; Harper, Kiyama, Ramos, & Aguayo, 2019). Families are generally seen as outside the purview of colleges (Kiyama & Harper, 2018). I was unable to find higher education interventions focused on families that were evaluated for impact on student mental health; this remains an unexplored arena. Evidence outside of higher education suggests that it is worth investigating. For example, in suicidal adolescents, family-based intervention RCTs have consistently shown a reduction in suicidal ideation and suicide risk factors, an increase in protective factors, and a reduction in psychiatric hospitalizations and suicide attempts.
Higher education news and literature often describes parents in negative terms, characterizing them as hovering (Carney-Hall, 2008; Pizzolato & Hicklen, 2011; Self, 2013; Taub, 2008; Wartman & Savage, 2008). However, positive forms of parental involvement are acknowledged, including support and advocacy for mental health issues (Carney-Hall, 2008; Morris, 2021). This issue may take on a new complexion now, as prior stereotypes about parental involvement were shaped by reactions to privileged classes, but inclusive engagement of diverse families may carry particular benefits (Kiyama & Harper, 2018). In fact, growing evidence documents the importance of family support to first-generation and SOC (Crockett et al., 2007; Makomenaw, 2014; Nuñez & Kim, 2012; Strayhorn, 2010; Torres & Solberg, 2001; Torres, Jones, & Renn, 2009). To support students coming from increasingly diverse backgrounds, family-focused programs should be as inclusive as possible. This includes providing services—such as those addressing housing, childcare, and working while in school needs—for the growing number of students supporting families (as parents, caregivers, or children), especially at community colleges (Ascend, 2020; Makomenaw, 2014; Nelson, Froehner, & Gault, 2013). Since many students, especially those of color, are not being served by the campus mental health system (Lipson et al., 2018), family interventions might be a key avenue for increasing support systems and help-seeking. Program development and evaluation is urgently needed.

**Faculty and Staff Interventions**

Non-parental adults, such as faculty and staff who serve as advisors or mentors, are a promising, yet understudied source of social and mental health support for college students (Le, Hsu, & Raposa, 2021). They serve as role models and sources of information, advice, practical help, and emotional support (Zimmerman, Bingenheimer, & Behrendt, 2005). Students themselves focus on teachers and teaching practices when asked what can be done to support student wellbeing, emphasizing the importance of approachability, empathy, and communication skills (Baik, Larcombe, & Brooker, 2019). Correlational studies and reviews of school prevention programs highlight the importance of both protective, positive interactions and the opportunity for teachers to reduce stressors in the learning environment (Baik et al., 2019; Bowman, 2010c; Wells, Barlow, & Stewart-Brown, 2003; Wyn, Cahill, Holdsworth, Rowling, & Carson, 2000).
Recent evidence emphasizes the role of mentoring in improving student mental health (Le et al., 2021), by supporting broader exposure to nurturing relationships, career options, and various social identities (Hagler, 2018). Being able to name a natural mentor is linked to reduced psychological distress, less risk-taking, and better academic and vocational outcomes during the transition to adulthood (Hurd & Zimmerman, 2010; Zimmerman et al., 2005). As with family interventions, the impact may be greatest on marginalized groups. College students from traditionally underrepresented backgrounds who retained a greater number of natural mentors through their first year of college showed reductions in depressive symptoms across the year (Hurd, Tan, & Loeb, 2016), via enhanced self-worth that reduced psychological distress (Hurd, Albright, Wittrup, Negrete, & Billingsley, 2018). Students who felt more emotionally close to mentors reported less depression and worry at follow-up than students less connected to their mentors (Le et al., 2021). Mentors are recognized as being particularly important for retention, mental health, and wellbeing among graduate students, and, once again, this is particularly true for students with marginalized identities (Allen et al., 2020; Becerra, Wong, Jenkins, & Pressman, 2020; Charles, Karnaze, & Leslie, 2021; Goldberg, Kuvalanka, & Dickey, 2019; Hazell et al., 2020; Hyun, Quinn, Madon, & Lustig, 2006; Jones-White, Soria, Tower, & Horner, 2020; Posselt, 2021; Ryan, Baik, & Larcombe, 2021; Tuma, Adams, Hultquist, & Dolan, 2021).

The impact of mentoring and advising interventions on academic outcomes has been extensively studied (Bettinger & Baker, 2014; Glennen, 1976; King, 1993). Proactive advising and strong mentoring relationships with faculty can increase social and academic integration and success for SOC on predominantly white campuses (Sedlacek, 1987; Tinto, 1993). Potential impacts on mental health have not been assessed but can be expected based on the known benefits of integration and belonging (see section below). There is a large literature on mentoring programs for younger adolescents, which is beyond the scope of this review, with mixed but somewhat encouraging findings (DuBois, Portillo, Rhodes, Silverthorn, & Valentine, 2011; Dubois, Holloway, Valentine, & Cooper, 2002; McQuillin, Lyons, Clayton, & Anderson, 2020; Raposa et al., 2019; Rhodes, 2008). One comprehensive meta-analysis of 70 outcome studies on intergenerational youth mentoring programs revealed modest effectiveness for promoting numerous positive outcomes, including mental health (Raposa et al., 2019). Given the nonspecific and broad range of mentoring activities (McQuillin et al., 2020), sophisticated

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2Identified by the mentee, not assigned
efficacy and implementation research designs may be needed to identify the specific factors within mentoring that impact particular segments of the student body.

While postsecondary faculty and staff have the potential to enhance student mental health, they may also harm students through microaggressions and discrimination (Goldberg et al., 2019; Knutson, Matsuno, Goldbach, Hashtpari, & Smith, 2021; Nolan, Khan, & Banks, 2018; Smith, Allen, & Danley, 2007; Suárez-Orozco, Casanova, et al., 2015). Microaggressions based on race/ethnicity (Keels et al., 2017; Ogunyemi et al., 2020), gender (Capodilupo et al., 2010; Nadal, Rivera, & Corpus, 2010), sexual orientation (McCabe, Dragowski, & Rubinson, 2013; Nadal et al., 2011; Platt & Lenzen, 2013), immigration status (Nadal, Mazzula, Rivera, & Fujii-Doe, 2014), disability (Keller & Galgay, 2010), religious affiliation (Nadal, Issa, Griffin, Hamit, & Lyons, 2010), social class (Broockman & Kalla, 2016; Jury et al., 2017; Walpole, 2003), documentation status (Suárez-Orozco, Katsiaficas, et al., 2015), and more are prevalent and perpetrated throughout higher education settings (including health and counseling professionals). For example, research documents that TGGD college students are “tokenized, misgendered, outing, and invalidated by faculty members throughout their academic day” (Knutson et al., 2021, p. 7; Matsuno, 2019). Such treatment is associated with negative mental health outcomes, including psychological distress, suicidal ideation, anxiety, and depression (Blume, Lovato, Thyken, & Denny, 2012; Hwang & Goto, 2008; Keels et al., 2017; Nadal, Rivera, et al., 2010; Pieterse et al., 2010; Torres, Driscoll, & Burrow, 2010; Woodford, Kulick, et al., 2014).

Interventions that train existing social network members to enhance their support or decrease perpetration of interpersonal harm have remained a rarely explored model of social support interventions since the 1990s (Lakey & Lutz, 1996). Ally training programs for faculty and staff reflect one strategy to increase support for and decrease harms toward stigmatized groups. They have been implemented in higher education to improve the collegiate experience of student veterans (Olsen, Badger, & McCuddy, 2014), LGBTQ students (Poynter & Tubbs, 2007), and students in recovery from substance use disorders (Beeson et al., 2019). These programs are recommended (e.g., Beemyn, 2005; Rankin, 2005) and popular but rarely evaluated in the empirical literature (Draughn, Elkins, & Roy, 2002; Poynter & Tubbs, 2007; Woodford, Kolb, Durocher-Radeka, & Javier, 2014). There is some preliminary evidence from secondary schools that training educators may increase intervention in anti-LGBTQ language and behavior.
and action to create safe and supportive environments (Greytak & Kosciw, 2010; Greytak, Kosciw, & Boesen, 2013; Johns, Poteat, Horn, & Kosciw, 2019; Payne & Smith, 2010; Szalacha, 2003).

Diversity trainings and racial dialogue workshops are another category of interventions to decrease interpersonal harms. Faculty sensitivity training to reduce racism and microaggressions is a leading demand of campus protesters (Berner, 2015; Byrd, Luney, Marie, & Sanders, 2021; Williams, 2019), but there is strikingly little evidence or agreement regarding effective interventions, desired outcomes, or even essential elements of such training (Ogunyemi et al., 2020; Paluck, 2006; Paluck & Green, 2009; Williams, 2019). Positive (Miller & Donner, 2000; Sue et al., 2019; White-Davis et al., 2018) and detrimental (Sue, Lin, Torino, Capodilupo, & Rivera, 2009; Sue, Rivera, Capodilupo, Lin, & Torino, 2010) effects have been demonstrated for higher education workshops and dialogues meant to combat racist interpersonal interactions. Meta-analyses of diversity trainings implemented in a range of settings suggest that they produce small-to-moderate improvements in attitudes and bias, with stronger effects if the training is mandatory and if dialogue lasts longer or occurs in a series rather than stand-alone (Bezrukova, Spell, Perry, & Jehn, 2016; Kalinoski et al., 2013). Interpersonal interventions to decrease harm perpetrated by faculty and staff receive greater attention in the unpublished literature (e.g., dissertation abstracts, conference proceedings). Investing the necessary resources to conduct and publish robust evaluations is recommended, especially as the demand for and popularity of such training surges in higher education. Further faculty opportunities to reduce stressors harming student mental health and enhance protective factors will be discussed below in the learning environment section of community-level interventions.

**Social Skills Training Interventions**

Social skills training is another interpersonal intervention that can enhance relationships, social support, and mental health (Ando, 2011; Conley et al., 2015; Hogan et al., 2002; Lakey & Lutz, 1996). These interventions are relatively rare in higher education and have been evaluated with mixed results. They represented 3% of universal mental health prevention interventions reviewed by Conley and colleagues (2015); two out of five were successful. One focused on roommates and enhancing positive communication (Waldo, 1982), and one used a computer-based approach to improving romantic relationships (Braithwaite & Fincham, 2007). Both involved skill development and practice. The evidence suggests value for enhancing social and
emotional competencies in higher education (Braithwaite & Fincham, 2007; Conley et al., 2015). A more recent intervention, evaluated through mixed-methods, focused on developing social skills among first-generation students at an ethnically diverse, public university (Schwartz et al., 2018). It increased participant support-seeking, GPAs, and closeness with instructors (Schwartz et al., 2018). Advocates propose teaching students support skills at orientation, in a way that would help every student begin college connected to a peer group; expressed goals would be community building and leadership and skill development (Caporale-Berkowitz, 2020). A peer-based, “helping each other” approach would have compounding impact, given that helping others promotes happiness, mental health, confidence, and self-esteem (Repper & Carter, 2011), that giving and receiving support produces the most benefits (Hogan et al., 2002), and that reciprocal self-disclosure fosters social connections that improve health and academic outcomes (Walton & Cohen, 2011).

Social skills training has documented efficacy when applied to psychiatric populations, with enhanced social functioning for as long as 6 months (Dam-Baggen & Kraaimaat, 1986; Finch & Wallace, 1977; Goldsmith & McFall, 1975; Hersen, Himmelhoch, Thase, & Bellack, 1984; Holmes, Hansen, & Lawrence, 1984; Lakey & Lutz, 1996; Monti & et al, 1979, 1980; Stravynski, Belisle, Marcouiller, Lavallee, & Elie, 1994). It is a critical component of peer support programs (Byrom & Byrom, 2018; Gidugu et al., 2015), and skill-focused efforts produce better outcomes than purely supportive approaches in treating depression in community mental health centers (Bryan & Arkowitz, 2015). Social skills training has been shown to add additional value in the context of social support interventions for a wide range of problems (e.g., cancer, loneliness, weight loss, substance abuse) and across individual and group interventions as well as peer- and professionally directed programs (Hogan et al., 2002).

While social skills training interventions are relatively rare in colleges, numerous existing activities in college life help students gain and practice interpersonal skills—from group work in courses to involvement in student organizations and athletics (Schwartz & Davar, 2018). Some preliminary work suggests that extracurricular and political activity may counter negative psychological health outcomes stemming from underrepresented students’ experiences of discrimination (Billingsley & Hurd, 2019; Hope, Velez, Offidani-Bertrand, Keels, & Durkee, 2018). Intergroup Dialogues in higher education are primarily focused on strengthening “capacities to foster social justice commitments” but may foster multicultural interpersonal
skills, which could have benefits for mental health (Frantell, Miles, & Ruwe, 2019; Hopkins & Domingue, 2015). Studies that assess mental health outcomes of existing social skill-developing programming in higher education and examine ways to cost-effectively enhance such impacts are urgently needed.

**Belonging Interventions**

Student belonging is another area ripe for intervention development and research, with much evidence already accumulated that belongingness enhances human health. Sense of belonging (i.e., the human need to belong to and be accepted within a community) influences a wide range of social, psychological, and academic outcomes for adolescents and young adults (Bensimon, 2007; Hausmann, Ye, Schofield, & Woods, 2009; Osterman, 2000; Pittman & Richmond, 2008; Shochet, Dadds, Ham, & Montague, 2006; Walton & Cohen, 2011). A weak sense of belonging is associated with poor mental and physical health and even suicide (Anderman, 2002; Baumeister & Leary, 1995; Gummadam, Pittman, & Ioffe, 2016; Hagerty, Williams, Coyne, & Early, 1996; Hoyle & Crawford, 1994; Mounts, 2004; Shochet et al., 2006). Strong belongingness predicts flourishing (positive mental health) (Fink, 2014) and shapes positive emotional and behavioral adjustment (Georgiades, Boyle, & Fife, 2013; Hagerty et al., 1996; Pittman & Richmond, 2008). School belonging enhances educational outcomes for adolescents and young adults (Cham, Hughes, West, & Im, 2014; Eccles & Roeser, 2003; Hughes, Hee Im, & Allee, 2015; Hurtado & Ponjuan, 2005; Kember, Lee, & Li, 2001; Tovar, Simon, & Lee, 2009), increasing student engagement, academic motivation and self-efficacy, and academic achievement (Cham et al., 2014; Eccles & Roeser, 2003; Freeman, Anderman, & Jensen, 2007; Ostrove, Stewart, & Curtin, 2011; Roeser, Midgley, & Urdan, 1996; Zumbo, McKim, Buhs, & Hawley, 2014). First-year college students (White and African American) with a strong sense of belonging develop enhanced institutional commitment and stronger intentions and success at persistence (Hausmann et al., 2009).

Belonging should be a valuable target for intervention, and there is growing evidence that it is modifiable through intervention in students (Binning et al., 2020; Gilken & Johnson, 2019; Layous et al., 2017; Marksteiner, Janke, & Dickhäuser, 2019; Stephens, Hamedani, & Destin, 2014; Walton, Logel, Peach, Spencer, & Zanna, 2015; Winkelmes et al., 2016). These interventions not only produce health and academic benefits but help reduce inequities, with strong support in a series of rigorous RCT studies (Brady, Cohen, Jarvis, & Walton, 2020;
Walton & Cohen, 2011). Specifically targeting first-year students, a belonging intervention changing attributional processes to decrease belonging uncertainty improved African American students’ self-reported health and wellbeing reduced their number of doctor visits 3 years post-intervention (Walton & Cohen, 2011), and 7-11 years later had large positive effects on their general psychological wellbeing (Brady et al., 2020). The intervention eliminated Black-White differences in psychological wellbeing in the treatment group that persisted in the control group (Brady et al., 2020). These benefits were mediated by greater college mentorship, so fostering belonging via brief intervention at the beginning of college enhanced mentorship during college and led to better social and psychological life outcomes post college. The same intervention also worked in Germany, with impact on depressive symptoms (Marksteiner et al., 2019). An RCT of a similar intervention, using real-life stories from senior students to help incoming students understand how social class backgrounds shaped college experiences and strategies for success, documented reduced stress and anxiety, improved adjustment to college life, and enhanced academic and social engagement (Stephens et al., 2014). The intervention eliminated achievement gaps for first-generation students by enhancing their resource utilization (e.g., meeting with professors) and improving end-of-year grades (Stephens et al., 2014).

Given the consistent association between belonging and academic and mental health outcomes, as well as evidence (produced through robust RCTs) that even brief interventions can produce sustained psychological benefits, researchers should examine the feasibility of scaling such interventions as well as continue to assess psychological outcomes using validated measures as they investigate academic benefits of such programs. Existing brief interventions are likely only the forerunners of what is possible for belonging interventions (Murdock-Perriera, Boucher, Carter, & Murphy, 2019). For example, Jedi Public Health, drawing on Purdie-Vaughn’s important work on identity safety (Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008) and Steele’s important work on stereotype threat (Steele, 2010) highlights the promise of comprehensive efforts to “remove and replace discrediting cues in everyday settings” for disrupting the “repeated physiological stress process activation that fuels population health inequities” (Geronimus et al., 2016, p. 105). The model’s developers identify specific opportunities to adjust “subtle and pervasive features of the social, psychological, and physical surround” in schools to create identity-safe, mental health-enhancing environments (Geronimus et al., 2016, p. 106).
Opportunities to Reach Underserved Populations

Interpersonal interventions may play a unique role in addressing mental health inequities at institutions of higher education and reaching marginalized and underserved students (Dubovi & Sawyer, 2018). Many aspects of interpersonal interventions may lead them to be effective with underserved populations: they allow for more time and informal interactions than clinical relationships; they can occur outside of institutions that have historically been tainted by racism, heterosexism, and cissexism (e.g., medical systems); and similarities between supporters and the supported individuals can foster mutual respect, cultural competency, and support tailored to identity and context (Fisher et al., 2014; Nicolazzo, Pitcher, Renn, & Woodford, 2017; Rosenthal et al., 2010; Sokol & Fisher, 2016). Given the role of stigma in perpetrating inequities in mental health services receipt, interpersonal interventions can play an important role in normalizing help-seeking among diverse students and their social circles (Dubovi & Sawyer, 2018).

Across a wide range of populations and health concerns, peer support and mentorship have been identified as a “robust strategy for reaching groups that health services too often fail to engage” and improving outcomes for those facing minority stressors; it may, in fact, be most effective among these populations (Graham & McClain, 2019; Nicolazzo et al., 2017; Sokol & Fisher, 2016, p. e1). As colleges become increasingly diverse with regard to gender, race, ethnicity, generational status, ability status, and sexual orientation (U.S. Department of Education, 2012), peer-led programs may provide an avenue for developing and delivering culturally sensitive and responsive mental health prevention and intervention (Dubovi & Sawyer, 2018; Heys & Wawrzynski, 2013). If peer educators and leaders are recruited in such a way that they are representative of the student body, they may be more likely to be perceived as culturally inclusive than campus staff or professionals (Dubovi & Sawyer, 2018). A diverse group, alone, of course is insufficient for addressing power and privilege, multiculturalism, and stigma, but research should investigate whether mental health interventions delivered by peers representing the student body and trained in multicultural competence enhances the effectiveness, impact, and reach of such programs (Dubovi & Sawyer, 2018). In one study from the 1980s, a counseling program training ethnic minority students to be support agents and referral resources was not successful beyond promoting professional development among the student leaders (Stokes et al., 1988). Another program training multicultural peer advisors (through two sequential three credit courses) at a diverse commuter college provides a model of peer training focused both on
counseling techniques and multicultural sensitivity but was not evaluated (Frisz, 1999). Further research is needed to confirm the promise of interpersonal programs for promoting mental health and preventing and treating mental illness among diverse and historically marginalized student groups on campus (Dubovi & Sawyer, 2018).

Overall, there is robust evidence that interpersonal strategies can be highly effective—particularly peer-based and belonging interventions—in enhancing student mental health, but little evidence exists regarding which specific programs or interventions are most effective in college populations. There is a particular dearth of interventions developed and tested for decreasing interpersonal harm. A challenge for future interpersonal intervention development is that relevant literature is widely dispersed and uses varied terminology for describing similar constructs. Developing shared understanding and terms for interpersonal intervention types and constructs may help to advance research.

Community-Level Interventions

I conceptualize community-level interventions as those created to influence how college community members perceive mental health and respond to students in distress. These interventions are intended to reach a substantial portion of the school community and change norms. Different from institutional interventions, which focus on factors within institutions’ control (e.g., policies, building design, budgets), community-level interventions aim to shift community members’ behavior across campus to improve the school’s culture and students’ mental health. In this section, I review evidence related to mental health gatekeeper trainings (GKTs), screening interventions, school-wide programs combining these approaches, crisis-response interventions, and interventions designed to alter the curriculum and learning environment.

Gatekeeper Trainings

GKTs are universal, primary prevention programs that seek to (a) increase knowledge about mental health disorders along with gatekeepers’ abilities to intervene, thereby (b) promoting help-seeking among the target population (Lipson, 2014). GKTs are typically brief; the most well-known programs run from 1 to 3 hours. Students (particularly resident advisors [RAs]), faculty, staff, and coaches are trained as gatekeepers in higher education.3 GKTs are similar in many ways to bystander interventions, a term applied in prevention efforts involving mental health and sexual assault, substance abuse, discrimination, and other contexts. Bystander interventions focus on

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meant to change community norms and behaviors around recognizing and responding to signs of mental health distress. However, they have mostly only been assessed for outcomes at the individual-level (Lipson, 2014; Wolitzky-Taylor, LeBeau, Perez, Gong-Guy, & Fong, 2020). In college settings and elsewhere, evidence of GKTs’ positive outcomes in target populations remains thin; training-related effects on help-seeking behavior and mental health in general student communities are largely unknown (Wolitzky-Taylor et al., 2020). A comprehensive review of GKT research published through 2013 revealed no studies in the college context that had evaluated GTKs’ impacts within the general student population (Lipson, 2014). Research is urgently needed to evaluate these programs for community-level impacts.

Individual-level GTK outcomes have largely been assessed for trained gatekeepers only (Lipson, 2014; Wolitzky-Taylor et al., 2020). Specifically, campus-based GKT research often involves pre-post surveys measuring trainees’ self-perceived and objective knowledge, attitudes, self-efficacy, and intervention skills, intentions, and behaviors (Lipson, 2014). Many GKT studies have identified intervention effects on trainees’ self-perceived and objective knowledge (Lipson, 2014). Most research on trainee attitudes (e.g., levels of stigma) has documented improvements from baseline to initial follow-up (Lipson, 2014; Shannonhouse, Lin, Shaw, & Wanna, 2017). Likewise, studies on self-efficacy (e.g., one’s perceived ability to persuade someone to get help) suggest that GKT has a significant positive effect for trainees from pretest to posttest. For example, in a cohort study of campus community members trained as gatekeepers (students, staff, and faculty), researchers found that the GTK program Question Persuade Refer (QPR) enhanced trainees’ self-perceived ability to connect at-risk students with mental health services (Mitchell, Kader, Darrow, Haggerty, & Keating, 2013). Coleman and colleagues (2019) examined the GKT program Kognito and discovered that undergraduate students trained as gatekeepers scored 84% higher on measures of gatekeeper self-efficacy (e.g., aware of suicide warning signs) than students in the control condition.

Gatekeeper skills (expertise in GKT objectives as assessed by a person other than the trainee) are another, but less commonly evaluated, individual-level outcome of GKT. A cohort study of university employees (faculty, staff, and coaches) and undergraduate RAs showed that recognizing a potentially harmful situation or interaction and training individuals to respond in a way that could positively influence the outcome. The book chapter “The Role of Active Bystander Training Within a Comprehensive Prevention Framework” provides an overview of bystander interventions in college settings (Jacobsen, 2018).
QPR improved gatekeeper skills: merely 10% of participants met criteria for acceptable skills at baseline, whereas 54% met criteria post-GKT (Cross, Matthieu, Lezine, & Knox, 2010).

Notably, however, these effects were measured immediately after training and likely represent the “best case scenario” (Cross et al., 2010, p. 156). Furthermore, although suicide-specific intervention skills (i.e., QPR) increased significantly, no changes were observed in general skills (e.g., active listening) (Cross et al., 2010). Another program, the Student Support Network—a 6-week training—was also found to improve students’ crisis-response skills (Morse & Schulze, 2013). In one pre-to-post study, graduate students trained to offer GKTs showed improvement in crisis communication skills (Morris et al., 2015).

Similarly little research has considered another individual-level outcome: trainee behavioral intentions (i.e., likelihood of intervening) or actions (i.e., actually intervening or making a referral to professional mental health care). An example of a behavioral intention measure is “How likely is it that you would talk with someone you know about their feelings if you thought they needed help?” (Pearce, Rickwood, & Beaton, 2003, p. 5). From baseline to initial follow-up, GKT has been shown to increase behavioral intentions in three of four studies measuring this outcome (Indelicato, Mirsu-Paun, & Griffin, 2007; Pearce et al., 2003; Tompkins & Witt, 2009). Yet such improvement did not translate to behavior, exemplifying the disconnect between intentions and behaviors. GKT also had no effect on trainees’ actual behaviors (intervening or referring to care) in three campus-based studies of this outcome (Indelicato et al., 2007; McLean & Swanbrow Becker, 2018; Tompkins & Witt, 2009). Empirical evidence indicates that GKTs can positively influence trainees’ knowledge, attitudes, self-efficacy, and intentions but not skills or actual behaviors. Further, most GKT studies have measured effects related to trainees’ self-reported outcomes without assessing actual helping behavior or, more importantly, population-level service utilization and wellbeing.

One college GKT study appears to have considered community-level intervention effects within the target population. Lipson et al. (2014) assessed the effectiveness of Mental Health First Aid (MHFA) delivered to RAs on 32 college campuses through an RCT. Residence halls were assigned to the intervention (MHFA plus preexisting trainings) or control condition (pre-existing trainings only) using matched pair randomization. MHFA was found to increase RAs’ subjective knowledge and self-efficacy (i.e., self-perceived ability to identify students in distress and confidence to help). However, no effects manifested for help-seeking or other outcomes.
among student residents. Lipson et al. (2014) thus concluded that “GKTs may need to be revised, and entirely new strategies may need to be considered” since they appear “insufficient for promoting intervention behaviors among gatekeepers or help-seeking and wellbeing in student communities” (p. 618).

In summary, the evidence base for GKTs on college campuses is dominated by assessment of trainees’ knowledge, attitudes, and self-efficacy. Less attention has been given to community-level outcomes, such as objective measures of target populations’ help-seeking behavior (i.e., at-risk students in the community). More research is also needed to understand weak associations between gatekeepers’ knowledge, attitudes, self-efficacy, intentions, and actual intervention behaviors (i.e., referring students to professional care). Scholars examining mental health interventions have cautioned that attitudes and intentions are generally poor predictors of future behavior (Glasman & Albarracin, 2006). Many studies have revealed positive effects of trainees’ knowledge, attitudes, self-efficacy, and intentions, yet these improvements are insufficient in enhancing mental health. Additional RCTs are needed to unravel the causal impact of GKTs on outcomes such as gatekeeper skills, gatekeeper referral patterns, student help-seeking, and student wellbeing. Finally, researchers must investigate the sustainability of GKT effects; many relevant studies only measured immediate post-training outcomes—a limitation hindering most intervention evaluations reviewed in this chapter. Longer-term follow-up thus far suggests that positive effects can diminish over time. For instance, in a cohort study evaluating QPR delivered to university staff, faculty, and students, Indelicato and colleagues (2011) identified positive training effects on self-perceived knowledge, attitudes, self-efficacy, and behavioral intentions from pre- to posttest. At 3-month follow-up, participants mentioned needing additional information about available resources, listening skills, how to express concern, and how to persuade someone to get help. Subsequent research should address gatekeepers’ long-term abilities to identify, intervene, and refer at-risk students to appropriate care. Measurement over time is needed to allow trainees to apply what they have learned and for effects to mature.

**Screening Interventions**

Screening interventions, in addition to gatekeeper interventions, can change how the college community responds to students experiencing mental health symptoms. The Substance Abuse and Mental Health Services Administration’s Comprehensive Systems Framework and
the U.S. Preventive Services Task Force both recommend depression screening, specifically when linked to effective treatment options (Horowitz, Ballard, & Pao, 2009; Siu et al., 2016; Substance Abuse and Mental Health Services Administration, 2019). Colleges are widely implementing screening interventions (Fedorchak & Cimini, 2018; Schwartz & Davar, 2018). Helping campus health centers identify and respond to students with mental health symptoms is especially important (Chung et al., 2011; Schwartz & Davar, 2018; Shepardson & Funderburk, 2014). Although many college students access on-campus health services (Eisenberg, Golberstein, & Gollust, 2007), most students with mental health symptoms—and more than 80% of those who die by suicide—do not use school-based mental health services (Lipson et al., 2015; Lipson, Lattie, et al., 2019).

Several studies have shown that screening for mental health symptoms and suicidal thoughts and behaviors in school settings holds promise for detecting and linking at-risk individuals to care (Eisenberg, Hunt, & Speer, 2012; Hom et al., 2015; Michelmore & Hindley, 2012; Peña & Caine, 2006). For example, an intervention increased mental health service access through screening for suicide risk and using motivational interviewing in an RCT (King et al., 2015). An evaluation of the National College Depression Partnership indicated that providing screening in primary care on eight campuses enhanced students’ treatment engagement and clinical outcomes (Chung et al., 2011): 12 weeks after initial screening, 86% of students identified as having clinical depression were in active treatment, 58% had agreed upon a self-management goal with their clinician, and 52% exhibited functional improvement (Chung et al., 2011). Other university screening programs have led students (i.e., 13.5–48% of those screening positive) to accept referrals, enter mental health treatment, and attribute their entry to screening (Haas et al., 2008; Moutier et al., 2012). Several studies of school-based suicide screening programs with younger adolescents have reported follow-up referral rates greater than 50% (Brown & Grumet, 2009; Gould et al., 2009; Hallfors et al., 2006; Husky, Sheridan, McGuire, & Olfson, 2011; King, Hill, Wynne, & Cunningham, 2012; Robinson et al., 2013). A systematic review demonstrated that college suicide screening programs improved identification of at-risk students; however, the positive predictive value of subsequent suicidal behavior in school settings was relatively low in some reports (range: 6–33%) (Peña & Caine, 2006). These findings coincide with data on adult populations suggesting that although suicide screening may enhance referral to treatment, it does not necessarily reduce suicide risk (LeFevre & U.S. Preventive
Further research is ultimately needed to understand how, when, where, and for whom screening programs are effective (Peña & Caine, 2006). Several questions remain unanswered in college settings. Are screening programs most cost-effective when administered with the general student body or at-risk students (Mann et al., 2005; Zalsman et al., 2016)? Are standard screens equally effective, valid, and reliable across different student populations (Mann et al., 2005; Zalsman et al., 2016)? Low response rates on screening surveys may mean that participants are more likely to seek help, underscoring the need for strategies to support students least likely to access care (Larzelere, Kuhn, & Johnson, 2004). These interventions are infeasible for schools with long mental health service waitlists and limited community treatment options.

**School-Wide Interventions Combining Gatekeeper Training, Screening, and More**

Most gatekeeper and screening studies have not measured the impacts of community-wide implementation on the student body’s mental health. A few school-wide interventions, often involving a combination of these activities, have been assessed accordingly. The best-known model for changing community norms to enhance mental health help-seeking and reduce suicide was devised outside higher education (AFMOA/SGZP, 2001; Knox, Litts, Talcott, Feig, & Caine, 2003; Knox et al., 2010): the Air Force Suicide Prevention Program has inspired campus-wide approaches to mental health promotion and suicide prevention (Jed Foundation, 2019), but it has not been formally evaluated within the college context. A 2-year campus-wide intervention, MindWise, was assessed in Australia (Reavley, McCann, Cvetkovski, & Jorm, 2014). This multifaceted intervention involving mental health first aid training, emails, posters, and campus events was evaluated through a cluster randomized trial in which campuses were randomized to an intervention or control group. Although no effects were detected on students’ mental health literacy or wellbeing (Reavley et al., 2014), the intervention increased staff’s knowledge and recognition of depression and risky alcohol consumption (Reavley et al., 2014). Nonetheless, the study’s risk of bias was high due to contamination between the intervention and control groups (i.e., students could attend different campuses during the same year) and high attrition (Fernandez et al., 2016; Reavley et al., 2014).

Despite MindWise being ineffective with college students, school-wide interventions involving middle and high school students indicate that such programs can reduce suicidal
behavior and increase service referrals by changing school norms (Ahern et al., 2018; Aseltine & DeMartino, 2004; Cifone, 2007; King, Strunk, & Sorter, 2011; Schilling, Lawless, Buchanan, & Aseltine, 2014; Wasserman et al., 2015; Wyman et al., 2010). For instance, the Sources of Strength intervention builds “socioecological protective influences” through peers (trained leaders from diverse social cliques, including at-risk adolescents) conducting well-defined messaging activities and altering school norms over 3 months, ultimately enhancing students’ (especially those at-risk) perceptions of the acceptability and effectiveness of seeking help from adults (Wyman et al., 2010, p. 1654). Students receiving the intervention were over four times more likely to refer suicidal friends to adults versus students in schools that had not received the intervention (Wyman et al., 2010). As another example, the Signs of Suicide Prevention Program combines gatekeeper training curricula—teaching students to recognize and respond to signs of suicide and depression in themselves and others—with a brief screening for depression and suicide risk (Aseltine & DeMartino, 2004). RCTs reveal significantly lower rates of suicide attempts, coupled with greater knowledge and more adaptive attitudes about depression and suicide, among students in the intervention group (Aseltine & DeMartino, 2004; Aseltine, James, Schilling, & Glanovsky, 2007; Schilling et al., 2014). Students’ race/ethnicity, grade, and gender did not influence the intervention’s impact, highlighting its benefits for diverse youth (Aseltine et al., 2007). Additional research is needed to determine whether school-wide mental health interventions that change community norms are only effective in the more closed environment of middle and high schools or are relevant in postsecondary settings as well.

**Post-Crisis Interventions (Postvention)**

Some community-level interventions aim to improve the college community’s response during and after mental health crises. A suite of evidence-based interventions exist to help K–12 schools prevent and reduce psychological distress symptoms among students after traumatic events (Kataoka, Langley, Wong, Baweja, & Stein, 2012). For instance, school-based interventions after Hurricane Katrina reduced such symptoms in students (Jaycox et al., 2010). At colleges, faculty and administrator responses to hate crimes, White supremacist violence, and bias incidents can inform students’ stress, anxiety, fear, and longer-term responses (El-Amin, 2016). Proactive activities to promote healing and reduce risk (i.e., contagion) following a suicide—“postvention”—are recommended (Higher Education Mental Health Alliance, 2018; Miller & Mazza, 2018). However, there is limited evidence for effectiveness: a systematic
review of post-suicide intervention programs, including school-based ones, revealed no protective effect against suicide attempts or deaths (Szumilas & Kutcher, 2011). But outreach at the scene of suicide was effective in encouraging survivors to attend a support group and seek help in dealing with their loss (Szumilas & Kutcher, 2011). Additionally, contact with a counselor for recent familial survivors of suicide has been found to reduce psychological distress in the short term (Szumilas & Kutcher, 2011).

**Learning Environment Interventions**

A large category of community-level interventions are those seeking to change responses to mental health within the college curriculum and learning environment (Dooris, Wills, & Newton, 2014; Newton, Dooris, & Wills, 2016; Orme & Dooris, 2010). According to a systematic review of “setting-based” postsecondary interventions to promote mental health, most programs focused on “modifying the way students are taught and assessed” (Fernandez et al., 2016, p. 805). Redesigning learning environments to become health-promoting is challenging; however, mounting evidence suggests that changes to syllabi, courses, and the classroom culture can help address college students’ mental and general health (Baik et al., 2019; Bowman, 2010c; Knutson et al., 2021; Orme & Dooris, 2010; Slavin, Schindler, & Chibnall, 2014). Institutions, schools, departments, and instructors have opportunities to (1) integrate mental health-promoting content and skills training into curricula, (2) reduce classroom and learning stressors that interfere with students’ mental health (Robotham, 2008), and (3) adopt pedagogical practices that support students’ wellbeing (Bowman, 2010c; Harper & Neubauer, 2021; University of Texas, 2020).

Course content that emphasizes mental health and coping can combat stigma and normalize caring for one’s mental health (Howard, Schiraldi, Pineda, & Campanella, 2006). Higher education institutions have created mental health-focused courses and incorporated class content related to student mental health (Conley, Travers, et al., 2013; Riley & Mcwilliams, 2007). Mental health interventions that provide students skills training through routine curricula appear useful. Conley et al. (2013) reviewed universal promotion and prevention programs for beneficial effects on college students’ social-emotional skills, self-perceptions, and psychological distress. The authors found that interventions “delivered as a class were more effective than small-group programs (e.g., workshops outside of class; interventions conducted in residence halls)” (p. 296). They hypothesized that students might be accustomed to learning course content
and become invested in instructor-led interventions. Although the interventions did not differ in preintervention equivalence or sample attrition, class interventions were longer on average ($M = 25.3$ hours, $SD = 12.5$) than small-group programs ($M = 8.6$ hours, $SD = 3.8$; $p = .004$). An academic semester may afford students sufficient time to acquire new skills.

Evaluations of mental health related courses or curriculum integration are generally methodologically weak. Most involve simple pretest-posttest assessments without a control group or adequate follow-up (Hood, Jelbert, & Santos, 2021; Wasson et al., 2016). Many include small, self-selecting samples that over-represent women and students pursuing health-related degrees, raising questions about generalizability (Hood et al., 2021; Regehr et al., 2013; Wasson et al., 2016; Young, Macinnes, Jarden, & Colla, 2020; Yusuf et al., 2018). For instance, a pre–post assessment of a mandatory two-credit, active learning, and general education course “Health in Modern Society” revealed a statistically significant increase in students’ mental health knowledge and a non-statistically significant increase in mental health wellness behaviors (Becker et al., 2008). A mandatory Health Enhancement Course (eight lectures + six 2-hour tutorials focused on the link between mental and physical health, behavior change strategies, mindfulness-based therapies, and more) delivered to first-year medical students led to pre-to-post improvements in quality of life, depression symptoms, and global mental health (Hassed, De Lisle, Sullivan, & Pier, 2009). A mandatory leadership course on student wellbeing enhanced pre-to-post connectedness, hope, and general positive youth development qualities (Shek et al., 2012; Shek, Yu, Ma, Sun, & Liu, 2013). Brief lectures integrated in a medical school curriculum were associated with stress reduction (Bughi, Sumcad, & Bughi, 2006). However, consistent research conclusions remain elusive due to high attrition (e.g., Bughi, Sumcad, & Bughi, 2016) and lack of a randomized control group. Several institutions, such as Georgetown University and the University of Washington, have incorporated mental health content into academic courses via curriculum infusion (Dobkin & Hutchinson, 2013; Lo et al., 2018; Riley & Mcwilliams, 2007), but such efforts have yet to be evaluated.

As an example of a more robust evaluation, a prospective quasi-experimental study indicated that a psychosocial wellness seminar for first-year college students improved students’ psychosocial wellbeing and stress management (Conley, Travers, et al., 2013). Additionally, a non-randomized controlled trial of a brief mindfulness-based stress reduction elective course for psychology students led to greater mindfulness and self-compassion (but not anxiety) after 6
weeks (Bergen-Cico, Possemato, & Cheon, 2013). A growing number of colleges are offering courses on positive psychology with encouraging results (Hood et al., 2021; Oades, Robinson, Green, & Spence, 2011; Parks, 2011; Young et al., 2020). In a quasi-experimental study that included an active, non-randomized control group, psychology students who initially scored low on mental wellbeing and high on valuing happiness benefited most from a course-integrated positive psychology program (Young et al., 2020). A class on the science of happiness improved first-year undergraduates’ mental wellbeing compared to wait-listed controls, whether the content was delivered live or online, amid the isolation of COVID-19 (Hood et al., 2021).

Additionally, a quasi-experimental longitudinal study showed that an online course involving self-directed mental health behavioral interventions for public health graduate students led to improvements in general and mental health at 12-week follow-up (Brett, Wang, Lowe, & White, 2020). These studies highlight the benefits of mental health courses and curricular infusion, both in-person and online. Findings also suggest the value of assessing cost-effective, scalable courses and curricula through rigorous research designs with diverse student populations. Further studies are warranted to test the mental health effects of diversity-related courses. Institutional LGBTQ course offerings (for credit) and taking more than one “diversity course” have been associated with lower psychological distress among sexual minority students (Woodford, Kulick, Garvey, Sinco, & Hong, 2018) and psychological wellbeing among first-year students, respectively (Bowman, 2010a, 2010b, 2010c).

In addition to adopting mental health-promoting curricula, colleges have striven to reduce stressors associated with students’ learning, testing, and the classroom environment. Structured and transparent assessment practices can limit anxiety and equitably improve students’ learning, retention, and testing performance (Chiou, Wang, & Lee, 2014; Cross & Angelo, 1988; Murphy & Destin, 2016). Shiralkar and colleagues (2013) reviewed controlled trials of stress management interventions for medical students, which included changes in the length and type of curricula and grading systems; pass/fail grading reduced students’ stress and anxiety. A few studies indicated lower perceived stress and higher wellbeing, without declines in academic performance, among medical students given a pass/fail grading system versus a multi-interval grading system (Bloodgood, Short, Jackson, & Martindale, 2009; Reed et al., 2011; Rohe et al., 2006). Saint Louis University School of Medicine instituted several changes to address structural conditions contributing to students’ stress and mental health problems: the school moved to a
pass/fail grading system, reduced contact hours in students’ first and second years by 10%, introduced longitudinal electives, and established learning communities of faculty and students. The school also added a required course on mindfulness and resilience. Slavin et al. (2014) identified lower levels of depression, anxiety, and stress among students exposed to these changes compared to older cohorts, but another study detected no effects (Tucker, Jeon-Slaughter, Sener, Arvidson, & Khalafian, 2015). Research on nursing students showed that a student-centered, problem-based curriculum was associated with lower distress and fewer academic, clinical, and personal concerns than a traditional curriculum (Jones & Johnston, 2000). More investigation is needed into the mental health effects of problem-solving and student-centered teaching, as well as other pedagogical methods such as “flipped teaching⁴.” Current evidence remains “scarce, contradictory, and ultimately inconclusive” (Fernandez et al., 2016, p. 805).

Beyond changing curricula and practices to reduce stressors, schools and instructors have implemented pedagogical activities to enhance protective factors and support students’ mental wellbeing. Enhancing conditions for wellbeing in the classroom is important since not flourishing (a measure of positive mental health) is associated with academic impairment among students (Keyes et al., 2012). Relevant foci include social connectedness, mindfulness, a growth mindset, resilience, gratitude, inclusivity, self-compassion, and life purpose (University of Texas, 2020). These factors have well-documented positive associations with mental health (Dvořáková et al., 2017; Emmons & McCullough, 2003; Johnson, Taasoobshirazi, Kestler, & Cordova, 2015; Neff, 2011); faculty have hence been encouraged to foster them in the classroom (Simon Fraser University, 2017; University of Texas, 2020; University of Washington, 2021). However, the mental health impacts of related classroom-based interventions have not been formally examined. A growing number of institutions have begun including a syllabus statement emphasizing the importance of mental health and use of resources as needed (Cimini & Rivero, 2018). Such statements normalizing help-seeking can influence students’ intentions to contact instructors for assistance (Gurung & Galardi, 2021). Incorporating inclusive content and resources for marginalized students into syllabi may have mental health benefits as well (Knutson et al., 2021).

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⁴ Flipped teaching is a methodology that prioritizes active learning in the classroom and direct instruction (e.g. viewing of lectures and presentations) at home (https://flippedlearning.org/).
The evidence base for community-level interventions to enhance college student mental health is small. Learning environment and screening interventions currently show the greatest promise. However, correlational research in higher education (e.g., Sontag-Padilla et al., 2016) and research in other settings, such as secondary schools (e.g., Ahern et al., 2018), suggests the value of designing and evaluating interventions to improve community norms—around identifying, supporting and referring students in psychological distress, responding to crises, and fostering wellbeing in the classroom—to advance mental health at colleges and universities.

**Institutional Interventions**

Student success, mental health, and public health empirical literatures are dominated by a focus on microlevel (e.g., individual and interpersonal) interventions and critiqued for “corresponding mitigated results” (Cohen, Scribner, & Farley, 2000; Harper, 2012; Ladson-Billings & Tate, 1995; Gloria Ladson-Billings, 2005; O’Connell, Boat, & Warner, 2009; Richard, Gauvin, & Raine, 2011, p. 314; Strayhorn, 2012; Titus, 2004; Trickett, 2009). Evaluated interventions largely aim to “fix the person” (i.e., student, patient) instead of “fixing the system” (Dooris, 2009; McNair, Albertine, Cooper, McDonald, & Major, 2016). While there is increasing attention to the importance of schools in addressing the health, there is limited understanding of how schools themselves—including their physical environments, policies, and budgets—impact student mental health (Anderman, 2002; Eccles & Roeser, 2003; Strayhorn, 2012). Colleges do not just provide avenues for reaching students and delivering interventions; they dramatically shape students’ lives during a period of significant development (Dooris et al., 2014; Newton et al., 2016). Rates of depression, anxiety, and help-seeking vary considerably across postsecondary institutions, but relatively little research has examined what accounts for this variation. Two studies that investigated impact of school characteristics, such as sector (public/private), size, and selectivity, were inconsistent and could not fully account for the variation across campuses (Cress & Ikeda, 2003; Lipson et al., 2015). Many, including the National Institutes of Health, have called for greater understanding of how school contexts and institutional factors impact health and health disparities (Eccles & Roeser, 2011; Palmer, Ismond, Rodriquez, & Kaufman, 2019).

Evidence suggests institutional transformation, rather than isolated interventions, is the most promising path to enhancing the health of members (Eckel & Kezar, 2003; Hawe, Shiell, & Riley, 2009; Newton et al., 2016). Healthy structures foster healthy interpersonal processes,
which foster healthy students (Fernandez et al., 2016). Changing the “surround” to reduce student stressors and increase student resources has considerable potential for improving mental health (Geronimus et al., 2016; Hatzenbuehler et al., 2014; Pearlin & Bierman, 2013). As the prevalence of mental health problems on college campuses continues to rise (CCMH, 2016; Twenge et al., 2010) and counseling services cannot keep up with demand (LeViness, Bershad, & Gorman, 2017), changing institutions to promote mental health, prevent mental illness, and reduce levels of psychological distress among students is essential and financially advantageous (Eisenberg, Golberstein, et al., 2009). While the limited research on institutional interventions has rarely employed the quasi-experimental methods needed to reveal causal linkages (DuPont-Reyes & Villatoro, 2019; Fernandez et al., 2016), below I review the evidence regarding institutional opportunities—through the physical environment, policies, and other avenues—to shape student mental health.

**Physical Environment**

Attention to the impact of the built environment on mental health is growing (Evans, 2003; Ferguson, Cassells, MacAllister, & Evans, 2013; Sullivan & Chang, 2011).

**Means Restriction.** A primary pathway to mental health risk reduction via the built environment is through restricting means for suicide. Extensive evidence documents means restriction as one of the few suicide prevention strategies with proven effectiveness (Cimini & Rivero, 2018; Hawton, 2007; Mann et al., 2005; Sarchiapone, Mandelli, Iosue, Andrisano, & Roy, 2011; Zalsman et al., 2016). Restricting gun access can lead to major declines in adolescent suicide (Miller & Hemenway, 2008). Reducing access to a lethal dose of acetaminophen reduced analgesic-related suicide in the UK (Hawton, 2007). Bridge barriers (e.g., safety nets) reduce suicide deaths from bridges (Beautrais, 2001; Cantor & Hill, 1990; Reisch & Michel, 2005). Means restriction is particularly critical for young people, whose time from first thought to suicide attempt is so short (Deisenhammer et al., 2009; Hawton, 2007; Schwartz & Davar, 2018; Williams, Davidson, & Montgomery, 1980). Those who are obstructed in their initially selected means generally do not seek alternatives and survive for decades (Daigle, 2005; Gunnell, Fernando, Hewagama, Priyangika, & Konradsen, 2007; O’Donnell, Arthur, & Farmer, 1994).

Common suicide methods used by college students include jumping, hanging, poisoning or overdose, and shooting (Schwartz, 2011), warranting review of institutional policies on gun possession, access to laboratories and/or toxic substances, and high-risk substance use.
(Washburn & Mandrusiak, 2010). By securing rooftops, bridges, and parking lots with barriers and alarms, colleges can limit jump opportunities. Installing breakaway closet rods in dorms and limited weight-bearing shower components can prevent hangings. Hosting drug take-back programs can decrease access to prescription drugs (Schwartz & Davar, 2018; Stratford, 2012). Studies examining the effectiveness of such strategies for college suicide prevention are hard to find (Fernandez et al., 2016), but their documented effectiveness elsewhere suggests they should be utilized and studied in higher education contexts.

**Health-Promoting Physical Spaces.** Colleges and universities can also enhance emotional wellbeing through the built environment. Best designs for healthy physical spaces are being developed (i.e., WELL Building Standard, Whole Building Design Guide) and applied in higher education settings (Worsley, Harrison, & Corcoran, 2021). These include connecting buildings to nature and providing access to natural light, opportunities for social interaction, and control over furniture choices. Research has begun on college stress reduction spaces (Klainberg & Ryan, 2010), “healing gardens” (Lau & Yang, 2009), and the use of windows and “digital windows” (plasma displays showing real-time outside scenes) to reduce stress and increase sense of belonging, connectedness, and mental restoration (Friedman, Freier, Kahn, Lin, & Sodeman, 2008). Issues of accessibility have been raised as important stressors impacting the lives of students with disabilities, TGGD students, and others (Goldberg et al., 2019; Nolan et al., 2018; Seelman, 2014, 2016). Efforts to enhance accessibility beyond Americans with Disabilities Act guidelines should be evaluated for mental health impacts.

**Policies**

Studies of mental health effects of higher education policies (or school-level policies more broadly) are rare (Brubaker & Mancini, 2017; Byrd & McKinney, 2012; Dooris, 2006; Fernandez et al., 2016), despite evidence to suggest many mechanisms through which they may affect student mental health. Policies may influence student mental health by shaping behavior (e.g., help-seeking and interpersonal harm) and improving campus climate (Goldberg, Beemyn, & Smith, 2018; Rhodes, Singleton, McMillan, & Perrino, 2005; Schwartz & Davar, 2018; Streng & Kamimura, 2015; Woodford et al., 2018). Relevant policies include those pertaining to substance use, sexual assault, leaves of absence, financial aid, and diversity, equity, and inclusion (including protection from discrimination). Medical amnesty policies, for example, improve perceptions of campus climate (Martinez, Johnson, & Jones, 2018)—which is linked to
enhanced student mental health (Byrd & McKinney, 2012; Charles et al., 2021)—and increase help-seeking in substance use emergencies (Haas, Wickham, McKenna, Morimoto, & Brown, 2018; Oster-Aaland & Eighmy, 2011; Oster-Aaland, Thompson, & Eighmy, 2011). However, benefits may not be conferred equitably across race and gender (Carroll et al., 2020). Alcohol policies can foster student behavior that benefits mental health. At Historically Black Colleges and Universities, for example, male students who are aware of campus alcohol policies are less likely to binge drink than unaware peers (Rhodes et al., 2005).

**Sexual Assault Policies.** The prevention of college sexual assault through strong policies and programs is essential for student mental health (Carey, Norris, Durney, Shepardson, & Carey, 2018; Dilip & Bates, 2021). Yet, detrimental aspects of these policies persist (Hoffmann & Mastrianni, 1992; Holland, Cortina, & Freyd, 2018; McGregor, 2016). For example, college sexual assault investigation and adjudication processes can traumatize survivors (McGregor, 2016). “Compelled disclosure” policies following sexual assault have been widely implemented, but evidence suggests negative consequences for survivors, employees, and institutions (Holland et al., 2018). Large variation in sexual assault policies (e.g., in definitions; identified points of contact; access to confidential, anonymous, third-party, or 24-hour reporting) across schools provides an opportunity to investigate differential impacts on student mental health (Potter et al., 2020; Sabina & Ho, 2014; Streng & Kamimura, 2015).

**Leave of Absence Policies.** Empirical research has also identified detrimental aspects of college leave of absence policies (Hoffmann & Mastrianni, 1992), attracting considerable media attention in recent years (e.g., Anderson, 2021; Farrow, 2016; Giambrone, 2015; Jancer, 2019). Clinicians, lawyers, mental health organizations, students, and the U.S. Department of Education have issued guidance for leave policies to best support student mental health and civil rights (e.g., Active Minds Inc., 2017; Bazelon Center for Mental Health Law, 2007; Kafka, 2020; Meilman, 2016; Mezey, 2021; Tan, 2019). Existing policies, while varied (Hoffmann & Mastrianni, 1992), have been criticized when they force leave or withdrawal and undermine treatment access (National Council on Disability, 2017; Schwartz, 2016). A time series study assessed changes in suicide rates before and after a university implemented a policy mandating four sessions of professional assessment, instead of leave, for students making a suicide threat or attempt (Joffe, 2008). In contrast to increasing suicide rates at similar institutions without this policy during the same time period, rates of suicide dropped from 6.91 to 3.78 per 100,000
enrolled students pre-to-post policy implementation (Joffe, 2008). Concerningly, the rate declined 72.2% among undergraduates but rose 94.6% among graduate students, emphasizing the need to assess policy effectiveness among different student populations (Joffe, 2008).

Readmission requirements are also a concern (National Council on Disability, 2017). A policy survey found that many colleges require stipulated time away from campus prior to reentry, documented evidence of “behavioral change” through completed coursework or employment elsewhere, and a screening interview by counseling center staff for return (Hoffmann & Mastrianni, 1992), but a review of empirical evidence suggests that these requirements do not predict successful reintegration (Hoffmann & Mastrianni, 1992). Interruptions in academic work for psychiatric reasons do not preclude continued academic engagement, and, in fact, such engagement may facilitate treatment and recovery (Hoffmann & Mastrianni, 1992). Legal cases since 1992 have likely led to revision of these policies (Kafka, 2020; Meilman, 2016). Research is needed to determine their current state and the degree to which institutions are accommodating flexible reintegration and benefitting student health and wellbeing.

**Diversity, Equity, and Inclusion Policies.** Policies pertaining to diversity, equity, and inclusion (DEI) are also relevant to student mental health, though rarely studied for these impacts in higher education. Evidence does suggest that multilevel, multicomponent DEI interventions can influence campus climate, student experiences of discrimination and marginalization, and social integration and support—all of which have significant implications for student mental health (Banks, 2015; Chia-Chen, Szalacha, & Menon, 2014; Gummadam et al., 2016; Hawe, Shiell, & Riley, 2004; Pittman & Richmond, 2008; Stebleton, Soria, & Huesman, 2014; Woodford, Han, Craig, Lim, & Matney, 2014). For example, lesbian, gay, and bisexual college students experience fewer verbal threats at schools with sexual orientation-inclusive nondiscrimination policies versus not (Hong, Woodford, Long, & Renn, 2016). Nondiscrimination policies inclusive of gender identity (in addition to sexual orientation) are directly associated with reduced discrimination experiences among sexual minority students, which is associated with less psychological distress (Woodford et al., 2018). Transgender and gender diverse (TGGD) college students who are aware of trans-affirming school policies endorse greater belonging and positive perception of campus climate (Goldberg et al., 2018), which are known to be positively associated with mental health (Gower et al., 2018; Woodford et
In qualitative studies, TGGD students stress the importance of inclusive school policies—such as inclusive nondiscrimination policies, gender-inclusive restroom options, and preferred name and pronoun policies for campus records—for their health and wellbeing (Goldberg et al., 2018, 2019; Pitcher et al., 2018; Sausa, 2005). The school safety and mental health benefits of policies that enumerate protections for sexual and gender minorities is supported by research in K-12 institutions and warrants further research in higher education. For example, among younger LGBT adolescents, those who perceive their school to have sexual and gender minority-inclusive policies report less victimization, more positive school climate, greater safety in school, and better mental health (Goodenow et al., 2006; Hatzenbuehler, 2011; Hatzenbueler & Keyes, 2013; Kosciw, Greytak, Palmer, & Boesen, 2014; Kull, Greytak, Kosciw, & Villenas, 2016; O’Shaughnessy, Russel, Heck, Calhoun, & Laub, 2004).

As DEI efforts continue to expand and vary across colleges and universities (Espinosa, Hollie, & Way, 2016; Gagliardi, Espinosa, Turk, & Taylor, 2017), research is needed to identify how policies can be designed, implemented, and promoted to enhance student health and wellbeing. Research should investigate policy impact on undocumented, first-generation, sexual, gender, and racial/ethnic minority students and others. There is also evidence that school composition and racial diversity influence mental health and wellbeing (Bellmore, Witkow, Graham, & Juvonen, 2004; Elharake et al., 2019; Graham, 2018; Graham, Munniksma, & Juvonen, 2014; Juvonen, Kogachi, & Graham, 2018). For example, underrepresented minority diversity within medical residency programs is associated with reduced risk for depression for both minority and majority racial groups (Elharake et al., 2019), so policies and initiatives that alter the makeup of the student body should be evaluated as an avenue for improving student mental health. Policies and structures implemented to support increasingly diverse student bodies, such as identity-support centers (i.e., women, multicultural, and LGBTQ centers), warrant further study as well (Heck, Flentje, & Cochran, 2011; Hurtado, Milem, Clayton-Pedersen, & Allen, 1999; Poteat et al., 2012).

**Financial Aid Policies.** Institutional decisions regarding the form, timing, and distribution of financial aid are a relatively unexplored but likely powerful lever for enhancing student mental health. A robust research and funding enterprise has focused on assessing their impact on student enrollment, persistence, and retention (Dynarski & Scott-Clayton, 2013; Goldrick-Rab, Harris, & Trostel, 2009; Herbaut & Geven, 2020; Hossler, Ziskin, Gross, Kim, &
Cekic, 2009; Nguyen, Kramer, & Evans, 2019; Page & Scott-Clayton, 2016). However, researchers should also investigate psychological effects given that financial stress taxes mental health (Adams, Meyers, & Beidas, 2016; Cadaret & Bennett, 2019; Gonzales, Suárez-Orozco, & Dedios-Sanguineti, 2013; Raza, Williams, Katsiaficas, & Saravia, 2019), and aid may impact academic, social, financial, and psychological pressures. For example, qualitative research shows that access to financial aid through the California Dream Act reduced undocumented students’ anxiety and mental health burdens (Raza et al., 2019). On the other hand, financial support can increase academic pressure due to associated academic requirements, social pressure for students in unfamiliar environments, and financial pressure if provided in the form of loans or if insufficient to cover all costs (Corredor, González-Arango, & Maldonado-Carreño, 2020; Nora, Barlow, & Crisp, 2006). Negative psychological effects of student loans and debt have in fact been demonstrated. Debt broadly impacts psychological functioning (Brown et al., 2005; Selenko and Batinic, 2011), anxiety (Cooke et al., 2004; Drentea, 2000), and mental disorders (Jenkins et al., 2008; Sweet, Nandi, Adam, & McDade, 2013) and poses psychological burdens for college students (Dowd & Coury, 2006; Robb, Moody, & Abdel-Ghany, 2011). A merit-based, forgivable loan program was associated with higher depressive symptoms and lower social support and academic self-efficacy for first-year college students, likely at least in part due to the pressure to graduate in order to receive the promised aid (Corredor et al., 2020). Student loans also undermine psychological functioning after graduation, in early adulthood (Walsemann, Gee, & Gentile, 2015). Further research is needed to understand how institutional choices regarding the timing and form of aid distributed to students impacts their mental health, as it does their academic outcomes and retention (DesJardins, Ahlburg, & McCall, 2002).

**Other Institutional Interventions**

Many other aspects of colleges—their finances, staffing, reward structures, hiring practices, public safety investments, mission statements, strategic plans, guiding documents, and more—no doubt influence student mental health but are strikingly absent from the empirical literature. These components of institutional infrastructure are recognized as key to shaping school culture and climate and to supporting and sustaining institutional transformation (Hurtado, Carter, & Kardia, 1998; Kezar, 2019; Kezar & Eckel, 2002; Mayhew et al., 2016; Milem, Chang, & Antonio, 2005; Milem, Dey, & White, 2004; Pascarella, 2006; Smith, 2015). As such, aligning them to prioritize and invest in advancing student mental health is critical. And
yet, the empirical literature offers little guidance on the specifics of how to do so. For example, college budgetary decisions have not been evaluated for their effects on student mental health. If and how much schools charge for counseling sessions, bill insurance companies for third party payments, include a mandatory health fee for all students that provides free counseling sessions, and limit the number of available sessions varies across institutions and time (Robert P. Gallagher, 2012). These financially-based considerations likely influence help-seeking and treatment receipt, but they have not been evaluated within higher education. Limited research on the relationship between higher education expenditures and student academic outcomes has produced contradictory results (Pike, Smart, Kuh, & Hayek, 2006), suggesting complex relationships that are contingent on school sector (public vs private). As another example, despite frequent student and police interaction around mental health (Bauer-Wolf, 2018; Margolis & Shtull, 2012) and robust evidence from outside of higher education that both direct and vicarious contact with police can pose a threat to mental health, especially for people of color (Devylder et al., 2018; Feldman, 2015; Geller, Fagan, Tyler, & Link, 2014; Nordberg, Crawford, Praetorius, & Hatcher, 2016; Nordberg, Twis, Stevens, & Hatcher, 2018; Smith Lee & Robinson, 2019), almost no quantitative research has studied how the presence and practices of college law enforcement affects student mental health. Further research is needed to fully elucidate how institutions of higher education, themselves, through their physical environments, policies, finances, and human resources shape student mental health. Nonetheless, the documented value of a) institutional infrastructure alignment for goal attainment and b) low-cost, equity-enhancing policies for student wellbeing warrants acting now and partnering with researchers to measure impacts over time.

**Public Policy: The Enabling Environment**

Postsecondary institutions present a critical avenue for preventing the onset and severity of mental health disorders, closing treatment gaps, and reducing the 10-year span it typically takes to receive treatment. Harnessing this relatively untapped opportunity provided by colleges would significantly contribute to addressing a major source of disease burden globally (Abafati et al., 2020), the leading cause of disability nationally (Michaud et al., 2006; The World Health Organization, 2004), and the $2.5 trillion annual cost of the disorders to the world economy (The Lancet Global Health, 2020). Local, state, and federal policies and budgets act to restrain or enhance colleges’ ability to address student mental health and achieve the aims of prevention and
treatment. A full discussion of every factor—external to colleges—currently or potentially enabling them to advance student mental health is beyond the scope of this review, but I briefly describe some important levers shaping higher education’s ability to contribute to addressing our large and growing global mental health crisis.

**Federal Policies**

The National Council on Disability provided an overview of federal policies relevant to serving college students with mental health disabilities (National Council on Disability, 2017). These include the Higher Education Act, laws mandating accommodations for individuals with disabilities—The Americans with Disabilities Act, Section 504 of the Rehabilitation Act, and the Fair Housing Act—and privacy laws, the Family Educational Rights and Privacy Act (FERPA) and Health Insurance and Portability Accountability Act (HIPAA). The American with Disabilities Act (ADA) mandates nondiscrimination in schools for individuals with physical and mental disabilities (including those with mental health disorders) but it is less commonly employed to protect the rights of those with mental disabilities (Hinshaw & Stier, 2008). FERPA and HIPAA shape schools’ ability to communicate with parents regarding mental health concerns (Eells & Rockland-Miller, 2011). This may protect student privacy and encourage help-seeking in some cases and, in others, pose a barrier to securing needed support and resources for students.

Several federal funding policies directly shape student mental health and colleges’ ability to provide mental health services. Federal funding for college student mental health, such as that provided through the Garett Lee Smith Memorial Act (GLSMA), likely reduced suicide mortality and suicide attempts among 10 to 24-year-olds (Walrath et al., 2015). Researchers further demonstrated that savings from avoided hospitalizations associated with the averted suicide attempts outweighed the GLSMA cost to fund multifaceted community-based suicide prevention strategies through colleges (Garraza, Walrath, Goldston, Reid, & McKeon, 2015). Recently, federal stimulus and relief funds following the COVID-19 pandemic have shown direct impacts on mental health and are being used by colleges to invest in student mental health (Cooney & Shaefer, 2021; Department of Education, 2021). For example, Foothills-Anza Community College (Los Altos Hills, California) used funding from the American Rescue Plan Higher Education Emergency Relief Fund to establish a Mental Wellness Ambassador program aimed at promoting mental health services, reducing stigma surrounding mental health
disorders, creating community, and fostering an inclusive and non-judgmental campus culture (U.S. Department of Education, 2021b).

**State Policies**

State policies impact college student mental through many avenues. There is evidence that structural mental illness stigma in the form of state laws (e.g., requiring disclosure of mental health diagnoses and treatment to become a lawyer, apply for a driver’s license, and seek child custody) interferes with student help-seeking and colleges’ ability to address the treatment gap (Corrigan, Markowitz, & Watson, 2004; Hinshaw & Stier, 2008; Organ, Jaffe, & Bender, 2016). Revisions to these laws, such as states removing mental health questions from their bar applications, should be evaluated as potentially cost-effective interventions for increasing student help-seeking (Holcombe, 2019; Working Group on Attorney Mental Health, 2019).

Growing evidence indicates that protective state policies (e.g., extending rights or prohibiting discrimination) can improve mental health and healthcare seeking among gender and sexual minorities (Gleason et al., 2016; Goldenberg, Reisner, Harper, Gamarel, & Stephenson, 2020b; Hatzenbuehler & Keyes, 2013; Perez-Brumer, Hatzenbuehler, Oldenburg, & Bockting, 2015; Raifman, Moscoe, Austin, Hatzenbuehler, & Galea, 2018). For example, living in states with more protective and less discriminatory laws for TGGD people is associated with reduced discrimination, victimization, psychological distress, mental health days, and lifetime suicide attempts among TGGD adults (Du Bois, Yoder, Guy, Manser, & Ramos, 2018; Gleason et al., 2016). Research has also identified a connection between state antibullying laws and increased K-12 school safety (Kull et al., 2016). How state laws influence students’ college experiences at more and less inclusive institutions within the state warrants investigation. Other state legislation, such as bans on Affirmative Action—known to be negatively associated with campus psychological climate and to increase Black, Hispanic, and Native American adolescent cigarette and substance use (Garces & Cogburn, 2015; Glasener, Martell, & Posselt, 2019; Kidder, 2012; Venkataramani et al., 2019)—and laws known to improve outcomes for undocumented students through providing in-state tuition (Flores, 2009; Gonzales et al., 2013) should also be evaluated for their mental health impacts.

Statewide funding and initiatives, for example, through California’s Mental Health Services Act, have resulted in major investments benefitting college student mental health and taxpayers (Ashwood et al., 2015; Clark et al., 2013; Sontag-Padilla, Seelam, Kase, Woodbridge,
& Stein, 2017; Stein et al., 2012; Woodbridge, Goldweber, Yu, Golan, & Stein, 2014). In 2016, House Bill 28 was enacted by the State of Ohio requiring each public institution of higher education to provide incoming students with information on mental health resources. A similar bill (SB 1624) was passed in Texas in 2015. More recently, the Governor of Ohio designated $16 million to be distributed to colleges to support the increased demand for mental health services for students ($13.5 million in direct aid to schools, $5 million from CARES Act Coronavirus Relief Funds, $8.5 million from the Governor’s Emergency Education Relief Funds).

State and federal laws pertaining to health insurance and clinical practice influence the mental health care that colleges are able to provide and students are able to access. Laws restricting the provision of therapy across state lines interfere with students remotely seeing providers from home if they attend college in another state, as well as colleges’ ability to provide counseling to students residing in other states. The need for remote healthcare during the COVID-19 pandemic has led to rapid loosening of many of these restrictions (National Academies of Sciences Engineering & Medicine, 2021), and it remains to be seen whether and how these changes will become permanent. The Affordable Care Act increased the proportion of young people with health insurance but resulted in more college students remaining on their parent’s insurance and limiting colleges’ ability to bill insurance companies for mental health services provided. Only a small proportion of college and university counseling centers accept insurance (LeViness et al., 2019); although there are challenges related to parent-child privacy and administrative burdens, increasing the reimbursement from insurance plans is an important opportunity for more adequately funding student mental health services (National Academies of Sciences Engineering & Medicine, 2021).

Local Policies

Local policies pertaining to the sale and advertising of alcohol shape college students’ drinking behaviors (Kuo, Wechsler, Greenberg, & Lee, 2003). Specifically, the availability of large volumes of alcohol, low sale prices, and frequent promotions is associated with higher binge drinking rates, and the number of on- and off-campus establishments positively correlates with number of drinks consumed (Kuo et al., 2003). Advocacy for healthy local alcohol policies and the study of them serve as a model for student mental health. Local policies and marketing potentially shaping health-promoting behaviors, such as sleep and exercise, should be investigated for mental health effects.
Conclusion: Summary of Intervention Evidence

Multilevel intervention is most effective for improving population health (Sallis et al., 2008). This review reveals that colleges and universities have evidence-based interventions to adopt and implement at every level of the socioecological model to enhance student mental health. Skill-training (especially but not only focused on mindfulness and social skills), peer support, belonging, screening, mental health curriculum, means restriction, and inclusive policy interventions stand out for quality evidence demonstrating their effectiveness with college students. Other areas urgently warrant intervention design and evaluation: coaching (with motivational interviewing); family interventions; interventions to reduce interpersonal harms and bias; school-wide interventions to address community norms, climate, stigma, help-seeking and referral; and institutional policies and practices. The review also demonstrates that funders, policy makers, and leaders outside of colleges and universities have many avenues and mechanisms for strengthening colleges’ ability to support student mental health. Overall, the review identified significant support for effective interventions at the individual-level of the ecological model and growing evidence for the effectiveness of interpersonal interventions. However, far more work is needed to assess the impact of community-level interventions on community-level outcomes and evaluate institutional-level interventions. Across all intervention levels and types, the evidence base will be strengthened through more experimental and quasi-experimental research designs, broader and more objective outcome measures (ideally combining mental health and academic outcomes), assessed over the long-term, and evaluations that include a greater diversity of student populations (e.g., TGGD and cisgender students, community college and 4-year students).

Based on the need for future work identified through this review, the next two empirical chapters in this dissertation focus on 1) enhancing understanding of how institutional factors, policies, and practices shape student mental health and 2) expanding research focused on diverse student populations facing mental health inequities. Specifically, I examine two areas of institutional policy and practice—policing and TGGD-inclusion policies—with likely implications for student mental health. In Study 2 (Chapter 3) I look at experiences and impacts across student race and gender identity and in Study 3 (Chapter 4) I focus on mental health inequities between TGGD and cisgender students. The work aims to continue this chapter’s efforts to move beyond describing the mental health crisis facing institutions of higher education.
and identify opportunities and potential solutions for addressing student mental health and mental health equity.
CHAPTER 3: Policing in Higher Education: An Examination of Common, Consequential, and Concerning Student Experiences and Support for Change

Introduction

Campus police are an increasingly common aspect of college life (Reaves, 2015). They are regularly the first and primary responders to address concerns about students’ mental health (Kase, Osilla, Seelam, Woodbridge, & Stein, 2016; Lanser, Freimer, & Craske, 2021; Margolis & Shtull, 2012). Yet policing is rarely mentioned within the body of resources intended to advise schools on opportunities to address the escalating mental health crisis on their campuses (Douce & Keeling, 2014; Jed Foundation, 2019; Kadison & DiGeronimo, 2004; National Academies of Sciences Engineering & Medicine, 2021; Steve Fund & Jed Foundation, n.d.; Wesley, 2019). Colleges and universities invest heavily in campus police forces whose impacts on students are rarely studied (Jenkins, Tichavakunda, & Coles, 2020; Reaves, 2015). This chapter addresses this research gap by investigating how policing shapes the college experiences of diverse students and studying their views on campus police presence and policy. Emerging evidence, from nonrepresentative mostly qualitative studies, indicates that policing may in fact perpetrate mental health harm at colleges and universities—especially for SOC (Dizon, 2021; Jenkins et al., 2020; Landers, Rollock, Rolfes, & Moore, 2011; McCabe, 2009; Smith et al., 2007; Solorzano, Ceja, & Yosso, 2000).

In the ensuing section, I provide an overview of policing in higher education followed by a literature review outlining likely differential police-related experiences for students based on race and gender identity. Racial and gender differences must be considered to fully evaluate the role of policing and to optimize institutional resource deployment to equitably advance students’ safety, mental health, and academic outcomes. Prior research has been constrained by a largely binary conceptualization of gender with little exploration of the spectrum of students’ racial identities. I approached my review and data collection with a focus on the intersection of racial and gender identity minority status, namely how each shapes students’ experiences with and views of campus police.
Policing in Higher Education – A Growing Presence

College students are policed by campus law enforcement agencies as well as local law enforcement (e.g., the local police department, sheriff’s office) (Reaves, 2015). Most campus police forces have patrol and arrest powers on and off campus (Reaves, 2015). Additionally, many campus law enforcement agencies have formal arrangements allowing outside agencies to police students alongside campus police (Reaves, 2015). Nearly all 4-year public colleges and universities in the United States employ sworn\(^5\) (96%) and armed (94%) police officers, as do nearly half of private colleges (46% and 45% sworn and armed, respectively) (Reaves, 2015). These data (from the most recent\(^6\) Survey of Campus Law Enforcement Agencies conducted by the Bureau of Justice Statistics) reflect a meaningful expansion of campus law enforcement agencies, with these forces growing faster than student enrollment (Reaves, 2015). Police at these agencies are also becoming increasingly weaponized (e.g., with assault rifles, grenade launchers, and armored vehicles provided by a Department of Defense program) (Bauman, 2014; Weissman, 2020a). These shifts have arisen even as crime on college campuses, which is rarely violent, declines (Reaves, 2015; Sloan, 1992; U.S. Department of Education, 2021a). Weaponizing has also occurred even though armed campus police officers’ core functions do not include crime response; these officers are most often involved in traffic direction and control, security at auditorium events, traffic accident response, traffic law enforcement, service call dispatch, executive protection, building lockup/unlock, and parking enforcement\(^7\) (Reaves, 2015).

Maintaining an expanded police force requires considerable institutional investment. Concrete cost data remain limited, but available figures suggest that the average operating budget for campus police and security services (at 4-year schools with 5000+ students) was almost $3 million in 2011 (United States Department of Justice, Office of Justice Programs Statistics, & Bureau of Justice, 2015). These data were derived from personal analyses of the publicly available Bureau of Justice long-form survey subsample. Three million is likely an underestimate, as most respondents reported receiving income from additional sources that they did not include in their budget estimates. For comparison, available data indicate that the average

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\(^5\) Those with general arrest powers

\(^6\) 2010–2011

\(^7\) Full list of functions reported by more than 90% of campus law enforcement agencies
college counseling center operating budget at similar institutions (4-year schools with 5000+ students) in the same year was one-third that of policing ($1,106,288) (Mistler et al., 2012). The budget for both campus entities is likely several magnitudes higher today.

Campus police are increasingly among the first or primary responders to a growing range of student issues (Reaves, 2015). Historically, students have tried to avoid police during mental health and substance use crises (Hollister, Scalora, Hoff, & Marquez, 2014)—yet campus officers are frequently the primary responders to students experiencing mental health problems (Kase et al., 2016; Lanser et al., 2021; Margolis & Shtull, 2012). These officers determine whether students should be directed to support services or to disciplinary processes, whether through the school or the criminal justice system, with implications for a number of student outcomes (Lanser et al., 2021; Margolis & Shtull, 2012). Campus police departments’ missions further convey their intended commitment to many student-oriented objectives, such as creating “a welcoming, inclusive and safe learning environment at all times” (https://www.usd.edu/administration/university-police/mission-statement); “providing a safe and inclusive community where students, faculty, staff and visitors may experience a sense of security and belonging” (https://police.wfu.edu/about-us/); and “improving the quality of life for all” (https://www.dpss.umich.edu/content/about/mission-vision/). However, representative research is needed to discern whether campus police are achieving these aims for all students. Findings will help guide optimal deployment of institutional resources meant to enhance students’ wellbeing and success.

**Previous Evidence on Policing and Student Outcomes**

The near ubiquity of police in students’ lives at higher education institutions has received minimal scholarly attention (Jenkins et al., 2020). Outside of higher education, policing is broadly recognized as a public health issue, and its contributions to health and educational inequities are attracting growing interest (Cooper & Fullilove, 2016; Cooper, Moore, Gruskin, & Krieger, 2004). Major health associations have united in formally documenting how police practices can harm health (APHA, 2018; Ehrenfeld & Harris, 2020). More voices are being amplified regarding the discriminatory and racist nature of law enforcement for a long list of marginalized groups; related policing acts have been shown to contribute to inequitable rates of incarceration, injury, poor health, and death (Edwards, Esposito, & Lee, 2018; Feldman, 2015; Fleming et al., 2021; Kramer & Remster, 2018). Violent and nonviolent police encounters can
adversely affect individuals’ physical and emotional health (Alang, McAlpine, & Hardeman, 2020; Dennison & Finkeldey, 2021; DeVylder et al., 2017; DeVylder et al., 2018; DeVylder et al., 2017; English et al., 2017; Feldman, 2015; Geller, Fagan, Tyler, & Link, 2014; Oh, DeVylder, & Hunt, 2017; Smith Lee & Robinson, 2019). Negative encounters are more common for people with mental health disorders (Devylder et al., 2017). Youth and adolescents are not protected from these poor experiences (Nordberg et al., 2016): scholars have documented detrimental impacts on mental health symptoms (Turney, 2020) and educational achievement, particularly among Black8 boys (Gottlieb & Wilson, 2019; Johnson, 2015; Legewie & Fagan, 2019). Studies in the K–12 setting have documented how school-based officers in particular contribute to the criminalization of racially minoritized youth (Crosse et al., 2021; Nolan, 2011; Skiba, Arredondo, Gray, & Raush, 2018).

Within higher education, emerging qualitative research—mostly conducted with Black students—has consistently highlighted police as a source of racialized aggression (McCabe, 2009; Mills, 2020; Solorzano et al., 2000; Torres et al., 2010). Such work indicates that the disproportionate policing of Black compared to White students is commonly experienced as accumulated microaggressions, which affect the racial climate on campus (McCabe, 2009; Solorzano et al., 2000). Students have described being regularly singled out to prove their student status with their school ID and being disproportionately surveilled, questioned, and disciplined in academic spaces, residence halls, and other social settings (Jenkins et al., 2020; McCabe, 2009; Solorzano et al., 2000). These experiences reflect both micro- and macro-level aggressions. They have influenced Black doctoral students and alumni as well as undergraduates (Torres et al., 2010). Researchers have also identified gender differences, with some evidence showing that Black women express less fear of police encounters than their male counterparts (Nordberg et al., 2018) and that Black men are especially susceptible to police attention (McCabe, 2009).

Qualitative research with Black men has further documented the psychological impact of racialized policing in higher education (Dizon, 2021; Jenkins et al., 2020; Smith et al., 2007). Many Black students experience “painful psychological stress responses” and a “diminished

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8 Some of the summarized studies use the term “African American”; however, I use “Black” throughout this manuscript to inclusively refer to African Americans, Caribbean Blacks, Africans, and other Black ethnic groups residing in the United States.
sense of belonging” (Smith et al., 2007, p. 573), even when they are not direct police targets, because the “campus response to criminality” assumes Blackness to be an indicator of potential culpability with impacts on all persons of color (Mills, 2020, p. 44). Scholars have also highlighted how campus crime alerts and ID checks perpetrate and reinforce racist stereotypes (Dizon, 2021; Jenkins et al., 2020; Pelfrey, Keener, & Perkins, 2018; Smith et al., 2007; Smith, Mustaffa, Jones, Curry, & Allen, 2016). Consequently, some Black students feel disenfranchised within their campus communities, as they do not feel protected by police when a crime has occurred on campus; they instead mobilize to protect themselves from police (Dizon, 2021). Black men also often feel singled out by law enforcement personnel for being both Black and male (Smith et al., 2007) and have reported being alienated, injured, and exhausted because of their “race-gender” identities (Dizon, 2021; Jenkins et al., 2020; Nordberg et al., 2018; Smith et al., 2007).

Gender effects have been confirmed in the sole two quantitative studies to date on college students and police. In a convenience sample of 102 Black undergraduates at a Midwestern university, police contact was highly stressful for Black students, with men most stressed by this contact and women more stressed by other events (e.g., intimate interpersonal stressors, nonpolice discrimination) (Landers et al., 2011). In another quantitative (but nonrepresentative) study of college students and police, attitudes toward police in general—not campus police specifically—were significantly more negative and mistrustful among racial minorities than Whites. The author identified fewer differences between men and women but did not examine the intersection of race and gender and, as in other described studies, only used a binary measure of gender (Mbuba, 2010). Additionally, despite being one of only two studies of college students and police to include White and racial minority students, the researcher grouped Asian, African Americans, Hispanic, and “other non-White” students together. The current study complements existing research by separately considering Whites, Asians, and underrepresented minorities (URMs)—a common category in higher education research and practice that includes African American/Black, American Indian or Alaskan Native, Hispanic/Latin(x), Native Hawaiian or Pacific Islander, Middle Eastern/Arab, and multiracial students.

Moreover, no higher education research on policing appears to have addressed transgender and gender diverse (TGGD) students—students whose gender identity or expression differs from their assigned sex at birth or does not fit within the male–female binary. TGGD
people have generally been left out of empirical studies on police experiences and perspectives within and outside higher education (Dwyer, 2011). Meanwhile, policymakers have acknowledged law enforcement bias and violence toward TGGD individuals on a national scale (National Center for Transgender Equality, 2015). More research is needed in light of a National Transgender Discrimination Survey in which half of transgender adults reported being uncomfortable seeking police assistance. Slightly less than one-quarter (22%) of those who interacted with police reported police harassment, with Black transgender people citing much higher rates of harassment and assault than other transgender adults (J. M. Grant et al., 2011).

The reviewed findings on harmful policing of Black transgender people and Black cisgender men (i.e., individuals whose sex or gender identity corresponds to the sex assigned on their birth certificate), coupled with the lack of research on students from across the gender spectrum with diverse racial identities, highlight the need for an intersectionality approach to understanding students’ experiences with police. Kimberlé Crenshaw coined the term “intersectionality” to address the “marginalization of Black women within not only antidiscrimination law but also in feminist and antiracist theory and politics” (Carbado, Crenshaw, Mays, & Tomlinson, 2013, p. 303; Crenshaw, 1991; Crenshaw, 1989). This approach involves recognizing that how one is treated is the result of multiple, intersecting identities (Collins, 1990; Crenshaw, 1991; Crenshaw, 1989) and entails “overlapping and conflicting dynamics of race, gender, class, sexuality, nation, and other inequalities” (Cho, Crenshaw, & Mccall, 2013, p. 788). This concept has been applied outside of higher education to demonstrate that race, gender, age, and class play interactive (multiplicative, not additive) roles in shaping police interaction (Christiani, 2021). For instance, Christiani (2021) found that race shapes one’s probability of being searched during a traffic stop: Blacks and Latinos are most likely to experience searches, whereas Asians are least likely. Discrepancies also exist for gender, with men being more likely to experience searches than women. Ultimately, as the number of “suspicious identities that a driver holds increases” across race, gender, age, and class, one’s probability of being searched rises in a multiplicative manner (p. 909). The present study thus extends previous investigations, which have included limited binary gender measures (i.e., male/female) and focused almost exclusively on small, nonrepresentative samples of Black students, to explore several groups’ experiences: those of White, Asian, and URM TGGD
students; cisgender men; and cisgender women (Jenkins et al., 2020; Mbuba, 2010; Nordberg et al., 2018; Smith et al., 2007).

Next Steps to Understanding

National attention to ongoing police-based injustice toward Black Americans has sparked protests and a search for solutions, including by college students and administrators. Several students experiencing mental health crises have been the victims of racist incidents and violence (e.g., murder) by campus police, fueling calls for change at colleges and universities (Bauer-Wolf, 2018; Chessman & Wayt, 2016; Harvard Law Review, 2016; Whitford, 2018; Wootson, 2018). Students and faculty have advocated for abolishing campus policing, reallocating funds to services such as mental healthcare, and cutting ties with local police departments (Dizon, 2021; Sainato, 2020). Task forces are being formed to assess university law enforcement investment, practice, and policy and to implement improvements to advance campus safety (e.g., Hampton, 2021; Marowski, 2021). For example, after the murder of George Floyd by Minneapolis police officers, the University of Minnesota responded to student demands and ended its contracts with the Minneapolis Police Department for large events and specialized services (McWilliams, 2020). The University of California Berkeley has begun to remove police from handling mental health issues in their community (https://bpm.berkeley.edu/projects/active-projects/reimagining-uc-berkeley-campus-and-community-safety-program/mental-health). Other institutions have pursued reform to better prepare police to respond to mental health crises, as these initiatives have shown effectiveness elsewhere (Compton, Bahora, Watson, & Oliva, 2008; Hails & Borum, 2003). For example, the State of California trained campus law enforcement professionals to more accurately identify, assess, and respond to students in psychological distress (Kase et al., 2016).

Despite calls for institutional attention to public safety policy, practices, and investment in higher education, little remains known about how policing affects students—all students and those with intersecting marginalized identities. Indeed, few empirical studies have considered students’ experiences with, attitudes toward, concerns about, and desire for change regarding how their campuses are policed. Researchers and policymakers therefore lack a clear understanding of how increasingly diverse student bodies are interacting with police and reacting to their presence and to proposed changes to campus policing policies. I examined these topics with a large, representative survey of students at a public university in the Midwest. Specifically,
this study considers 1) students’ encounters with police while in college, querying frequency and quality of interactions with police as well as academic impacts; 2) students’ attitudes toward police presence on campus, specifically whether it makes them feel safe and supports their mental health; 3) students’ concerns about campus police; and 4) students’ perspectives on policy changes under debate to improve public safety at their school. Across each area, I examined subgroups at the intersection of race and gender identity to address the encounters, attitudes, concerns, and policy perspectives of White cisgender men, White cisgender women, White TGGD students, Asian cisgender men, Asian cisgender women, Asian TGGD students, URM cisgender men, URM cisgender women, and URM TGGD students.

This research responds to the call for “more scholarly discourse centering on the role of campus security in campus life” (Jenkins et al., 2020, p. 5). Qualitative evidence has identified police as a source of racialized aggression for Black cisgender students (primarily men). However, this finding has not been contextualized based on quantitative estimates of the prevalence of police encounters across the general student population or representative estimates within specific populations (Mills, 2020). For example, Black students are not a monolithic population; the extant literature involving small, nonrepresentative samples may not fully capture these students’ experiences and perspectives. Representative survey research will expand the understanding of this matter. Current students’ attitudes toward and concerns about the police presence on their campus warrant further consideration (Dizon, 2021). In particular, descriptive data related to students’ experiences, attitudes, and concerns will pave the way for enhanced understanding of police impacts on academic and mental health outcomes (Jenkins et al., 2020; Smith et al., 2007). This study will also clarify differences across race (i.e., by separately considering White, Asian, and URM students) and gender identity (i.e., cisgender and TGGD students) as well as the likely interactions between both dimensions.

This study is not intended to uncover race-based differences within the URM category but to consider American Indian or Alaskan Native, Hispanic/Latin(x), Native Hawaiian or Pacific Islander, Middle Eastern/Arab, and multiracial students in addition to Black students. This work also enriches the literature by separately considering the experiences of Asian students, who are often neglected in policing research but whose experiences vary from those of other people of color (Christiani, 2021; Peck, 2015; Rosenbloom & Way, 2004). Finally, while researchers have rarely differentiated between students’ experiences with campus police and
local law enforcement officers, this research broadly documents students’ encounters with police (from any agency) and specifically scrutinizes the impacts of and students’ attitudes toward campus police. Results offer valuable insight for higher education leaders, policymakers, and stakeholders by providing a more holistic view of students’ experiences along with relevant data to identify institutional policy-change opportunities.

Methods

This study involved adding a new set of survey items to the Healthy Minds Survey (HMS), a national survey on college students’ mental health. HMS is an annual cross-sectional survey that has been administered at hundreds of colleges since 2007 (Healthy Minds Network, 2021). It is a self-administered online survey, completed by students on computers or smartphones via the Qualtrics platform.

The survey was distributed to a random sample of 35,000 degree-seeking students at a public Midwestern university (henceforth given the pseudonym “Apple U”) between March 10 and April 2, 2021. The sole exclusion criterion was that students had to be aged 18 or older. To incentivize participation, students were entered into a raffle for 1 of 212 cash prizes totaling $4,000 (two $500, ten $100, and two-hundred $10 gift cards). Raffle eligibility was not contingent on survey completion. The survey response rate was 15.4%, which is consistent with Healthy Minds Survey response rates across time and institution types, as well as with other online surveys (Eisenberg, Golberstein, et al., 2007; Lipson et al., 2015; Lipson, Phillips, et al., 2021).

Student information for recruitment (names, email addresses) and nonresponse analyses (sex, race/ethnicity, academic level, and grade point average) were obtained from the university registrar. These data were used to construct nonresponse weights, equal to 1 divided by the estimated response probability, to adjust for potential differences between responders and nonresponders. A logistic regression predicted the likelihood of response associated with each variable. Weights were larger for respondents with underrepresented characteristics, helping to ensure that the estimates were representative of the Apple U student population in terms of these attributes.

The university’s Institutional Review Board approved this study, which was covered by a Certificate of Confidentiality from the National Institutes of Health. Students’ recruitment emails contained a personalized link to the survey, which brought them to an informed consent page.
They were required to agree to the terms of participation before beginning the survey. Reminder emails were sent 6, 14, and 19 days after the initial invitation; the first email was sent in the name of the university’s Provost, and all others were sent in the name of the Vice President for Student Life.

Survey Setting

Apple U is a large, public, predominantly White R1 research institution in the Midwest. The campus police department is a full-service law enforcement agency. The police force was established in 1992, and all university safety and security responsibilities were consolidated into one division in 2012. As of Fall 2021, the division employs just over 300 people (predominantly White men), with an annual budget (2020–21) of nearly $33 million. Officers have full authority to investigate, search, arrest, and use reasonable force, if necessary, to protect people and property. Their comprehensive use-of-force policy trains officers before issuing weapons, including chemical spray, batons, Tasers, and firearms. The department responded to nearly 500,000 calls for service between 2017 and 2020, only 5% of which were criminal (e.g., violations of the controlled substance act, larcenies). They were primarily service activities (e.g., lost and found, student escorts, outreach) (30%), patrol (e.g., property checks, foot patrol) (23%), alarms (i.e., unlocks, service, fire alarms) (20%), and medical responses (e.g., responses to the emergency department, medical escorts, medical assistance) (14%). The department partners closely with several local law enforcement agencies and shares areas of concurrent jurisdiction off campus. Police are the primary responders to students in mental health distress at Apple U. If students are in distress due to a mental health problem and/or there is marked concern about a student’s mental health/wellbeing, the police are most likely to be involved in checking on the student. Depending on the location, residence life staff (in a dorm) or faculty (in a classroom) might also be involved in responding. The police (campus police from on-campus buildings, residences, and other locations; and local police from off-campus locations) provide transportation when hospitalization is necessary.

Measures

Survey measures were developed based on a review of available measures assessing individuals’ attitudes toward police outside of higher education. Items were adapted and refined through feedback and revision from 30 topical experts. The expert panel included scholars with expertise in higher education, psychology, policing, mental health, Black men, college students
of color, and survey methodology; practitioners with a deep understanding of Apple U, Apple U’s policing practices, and student life at Apple U; and students representing diverse racial and gender identities.

**Encounters with Police.** Several measures broadly concerned respondents’ interactions with police while enrolled at Apple U. Respondents were told that “We would like to learn more about your experience with police as a student at [school]: on campus, where you live, and where you work. For these questions, when we refer to police, we include campus police, local police, and other law enforcement in the community (e.g., County Sheriffs, State Police, Immigration and Customs Enforcement (ICE) Officers).” If respondents endorsed contact with police during their time as a student, they were asked about the number of interactions (1–3, 4–6, 7–9, 10+) and quality: “How would you characterize these experiences?” (1 = very positive, 2 = positive, 3 = neutral, 4 = negative, 5 = very negative) and “Were you treated fairly in these interactions with police?” (1 = all of the time, 2 = some of the time, 3 = none of the time). All respondents were asked “How have your thoughts and feelings about interaction or potential interaction with police while a [school] student affected your academic performance?”, scored on a 5-point Likert-type scale (1 = very positively, 5 = very negatively).

**Attitudes Toward Campus Police Presence.** Students’ attitudes toward campus police presence were assessed by asking respondents the extent to which they agreed or disagreed that 1) “Police presence on campus makes me feel safe”; 2) “Having armed officers on campus is good for my mental health”; and 3) “Having unarmed police officers on campus is good for my mental health” (scored on a 4-point Likert-type scale anchored by 1 = strongly agree and 4 = strongly disagree). These items were later converted into binary variables indicating whether respondents agreed with the statement (those who strongly agreed or agreed) or not (those who disagreed or strongly disagreed). Respondents were also asked to rate their level of comfort with the police being involved in responding if they were in distress due to a mental health concern on a 4-point Likert-type scale, with a binary variable created to reflect discomfort (very uncomfortable or uncomfortable) or comfort (comfortable or very comfortable). Prior to answering this item, respondents were informed of Apple U’s practice of having police conduct wellness checks and respond to students in mental health distress.

Mental health was not formally defined in the survey, such that respondents could apply their own interpretation. However, before completing attitude measures, all respondents were
asked at least 24 questions about their mental health status and service use. For example, they completed validated scales assessing flourishing (positive mental health) and symptoms of depression, anxiety, and eating disorders (Patient Health Questionnaire-9, General Anxiety Disorder-7, SCOFF scale); suicidality; mental health diagnoses; and use of clinical services and medication. All respondents were therefore primed with the same, clinical introduction to the concept of mental health.

**Concerns About Campus Police.** Respondents were asked which of the following are or are not concerns you have about campus police/[Apple U] Department of Public Safety and Security.” Items corresponded to the following topics: 1) racial profiling (targeting people of color without evidence of criminal activity and based on perceived race, ethnicity, national origin, or religion); 2) carrying weapons; 3) lack of training (e.g., in anti-racism, mental health, and/or unconscious bias); 4) lack of oversight; 5) too much funding/overspending; and 6) “other.” Response options included “not a problem,” “might be a problem,” “this is a problem,” “this is a big problem,” and “I don’t know enough about this to say.

**Perspectives on Policy Solutions.** Respondents were asked to “Please rate the extent to which you support or do not support the following at [Apple U].” Listed policy actions included 1) increased training for campus police officers (e.g., anti-racism training, mental health training, unconscious bias training); 2) increased oversight of campus police; 3) disarming campus police officers; 4) redirecting funds from policing into community resources (e.g., counseling services, multicultural student affairs); 4) expanded use of nonsworn, unarmed staff at [Apple U] to respond to safety, security, and mental health concerns and to decrease the use of police on campus; 5) expanded use of nonsworn, unarmed staff at [Apple U] to respond to safety, security, and mental health concerns and to discontinue use of police on campus (i.e., abolition); and 6) “other.” Response options spanned “do not support,” “neutral,” “somewhat support,” “support,” and “don’t know.”

**Race and Gender Identity.** Subgroup differences were examined across students’ racial and gender identities. Gender identity was classified using the 2-step method (National Academies of Sciences, Engineering, 2020; Reisner, Conron, et al., 2015). Respondents were

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9 Unfortunately, there was a typo in the survey phrasing; the actual wording of the final item read “Expand the use of nonsworn, unarmed staff at [school name] to respond to safety, security, and mental health concerns and decrease and discontinue use of police on campus (i.e., abolition).”
asked “What was your assigned sex at birth?” (response options: female, male, intersex) and “What is your current gender identity?” (response options: female, male, trans female/trans woman, trans male/trans man, genderqueer/gender nonconforming, gender nonbinary, self-identify). Respondents who indicated their gender identity as trans, genderqueer/gender nonconforming, gender nonbinary, or self-identified were classified as TGGD, as were respondents whose current gender identity did not match their indicated sex assigned at birth. Respondents whose current gender identity matched their sex assigned at birth were classified as cisgender (male or female, per their indication).

Respondents who identified their race/ethnicity only as “White” were classified as White; those who only selected “Asian American/Asian” were classified as Asian; and those who identified as African American/Black, Hispanic/Latin(x), Middle Eastern, Arab, or Arab American, American Indian or Alaskan Native, Native Hawaiian or Pacific Islander, and/or “self-identify” were classified as URMs. Respondents who identified as more than one of these races or as one or more of these races and “Asian American/Asian” were classified as multiracial (and still URM). Distinct racial groups were placed into one URM category due to the small sample of TGGD students within each racial group (9 Black, 7 Latinx, 2 Arab, 25 multiracial, and 2 “Other” students; see Table 3.1). Researchers could consider examining subgroup differences by race only (e.g., see Table 3.2) in the future. I used the larger URM group in order to include TGGD students and examine the intersection of gender identity and race.

**Student Demographic and Background Variables.** For descriptive purposes, the survey also assessed students by age (18–23, 23–25, 26–30, 31+), degree level (undergraduate vs. graduate), sexual orientation (sexual minority vs. heterosexual), first-generation status (neither parent held a bachelor’s degree vs. at least one parent who did), international status (international student vs. not), housing (university housing vs. non-university housing), and police interactions prior to college. Respondents who selected lesbian, gay, bisexual, queer, questioning, and/or “self-identify” as their sexual orientation were classified as sexual minorities; those who indicated “heterosexual” were not. Regarding housing, respondents were asked where they currently lived. Those who indicated “on-campus housing, residence hall,” “on-campus housing, apartment,” “fraternity or sorority,” or “on- or off-campus cooperative housing” were classified as living in university housing. Those who indicated “off-campus, non-university
housing,” “off-campus, with my parents (or relatives),” or “other” were classified as living in non-university housing.

**Analyses**

Analyses were primarily descriptive, intended to elucidate variation in students’ police encounters and attitudes by race and gender. All analyses were conducted in Stata 15 and weighted using the sample probability weights described above. Weighted prevalence rates were calculated for all respondents, White cisgender men, White cisgender women, White TGGD students, Asian cisgender men, Asian cisgender women, Asian TGGD students, URM cisgender men, URM cisgender women, and URM TGGD students for categorical variables. A chi-square analysis was run for each categorical variable to test for differences in prevalence rates across race/gender groups. Weighted percentages, odds ratios (OR), and 95% confidence intervals (CIs) are presented for binary attitude variables for White cisgender women, White TGGD students, Asian cisgender men, Asian cisgender women, Asian TGGD students, URM cisgender men, URM cisgender women, and URM TGGD students relative to the reference group of White cisgender men.

**Results**

**Study Sample**

The sample included 5,379 students. More than half (55%) of respondents were White, 25% were Asian, and 20% were URM (4.4% Black, 4.0% Latinx, 2.4% Arab, 9.1% multiracial, and 0.81% “self-identify”). Half identified as cisgender women, 47% as cisgender men, and 3% as TGGD students. The majority (65%) were aged 18–23 and were undergraduates (64%). Nearly one-quarter (21%) identified as a sexual minority, 18% were first-generation students, 11% were international students, and a relatively small proportion (16%) lived in university housing. As shown in **Table 3.1**, students’ demographic characteristics and experiences varied by racial group.
Table 3.1 Descriptive Statistics of Sample (N = 5379)

<table>
<thead>
<tr>
<th>Student Characteristics</th>
<th>Full Sample</th>
<th>White</th>
<th>Asian</th>
<th>Black</th>
<th>Latinx</th>
<th>Arab</th>
<th>Multiracial</th>
<th>Other*</th>
</tr>
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<td>(N)</td>
<td>%</td>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
</tr>
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<td><strong>Full sample</strong></td>
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<td>.45</td>
<td>942</td>
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<td>424</td>
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<td>2042</td>
<td>.47</td>
<td>733</td>
<td>.50</td>
<td>116</td>
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<td>.45</td>
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<td>.36</td>
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<td>.66</td>
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</tbody>
</table>

Notes. Table values are weighted percentages and unweighted counts. *The “Other” race column includes students who identified as “American Indian or Alaskan Native,” “Native Hawaiian or Pacific Islander,” or opted to “self-identify” their race and wrote descriptions such as “Turkish,” “Central Asian,” or “Pakistani.” *b These survey respondents opted to “self-identify” their gender identity and wrote descriptions such as “agender” or “questioning.”
<table>
<thead>
<tr>
<th>Interaction Frequency</th>
<th>Full Sample</th>
<th>White</th>
<th>Asian</th>
<th>Black</th>
<th>Latinx</th>
<th>Arab</th>
<th>Multi</th>
<th>Other*</th>
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<td>%</td>
<td>N</td>
<td>%</td>
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<tr>
<td>Treated fairly</td>
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<tr>
<td>None of the time</td>
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<td>89</td>
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<td>41</td>
<td>4</td>
<td>16</td>
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<td>17</td>
<td>258</td>
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<td>79</td>
<td>40</td>
<td>34</td>
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<tr>
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<td>1770</td>
<td>80</td>
<td>1163</td>
<td>77</td>
<td>285</td>
<td>53</td>
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<td>Academic Impact</td>
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<td>1.7</td>
<td>46</td>
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<td>19</td>
<td>1.8</td>
<td>2</td>
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<td>18</td>
</tr>
<tr>
<td>Very Negative</td>
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<td>31</td>
<td>.60</td>
<td>19</td>
<td>.47</td>
<td>5</td>
<td>10</td>
<td>2</td>
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</tbody>
</table>

**Notes.** Table values are weighted percentages and unweighted counts. *The “Other” race column includes students who identified as “American Indian or Alaskan Native,” “Native Hawaiian or Pacific Islander,” or opted to “self-identify” their race and wrote in descriptions such as “Turkish,” “Central Asian,” “Pakistani”
Encounters with Police

Frequency of Interaction. As shown in Table 3.3, almost half (46%) of respondents interacted with any police while attending Apple U; most (41%) interacted with police 1–3 times, with variation across racial and gender groups \(\chi^2(32, N = 5225) = 154.14, p < 0.001\]. Fifty-seven percent of White TGGD students reported police contact, followed by URM cisgender men (55%), White cisgender men (52%), White cisgender women (49%), URM TGGD students (46%), URM cisgender women (43%), Asian cisgender men (36%), Asian cisgender women (33%), and Asian TGGD students (28%). Those who reported any contact also reported more instances of police contact. More than 10% of URM TGGD students (10.2%) experienced four or more contacts compared with 8.9% of White TGGD students, 6.8% of White cisgender men, 6.5% of URM cisgender men, 5.6% of White cisgender women, and 4.9% of URM cisgender women. The five most common types of reported police contact were casual conversation \((n = 888)\), police responding to a noise complaint \((n = 598)\), traffic stop \((n = 495)\), interacting with an officer patrolling the campus by foot \((n = 361)\), and “other” \((n = 341)\).

Quality of Interaction. Among respondents who interacted with police while in college, 14.6% had negative interactions and 24% experienced unfair treatment. However, negative interaction rates varied across subgroups \(\chi^2(32, N = 2353) = 189.68, p < 0.001\]. They ranged from 19.1% to 40% for URM and TGGD groups but from 7.7% to 16.2% for White and Asian cisgender students. Specifically, negative interactions were reported by 40% of Asian TGGD students, 36.4% of White TGGD students, 32% of URM TGGD students, 20.7% of URM cisgender men, and 19.1% of URM cisgender women compared with 16.2% of Asian cisgender women, 13.3% of White cisgender women, 12.3% of White cisgender men, and 7.7% of Asian cisgender men. Unfair treatment also differed by subgroup \(\chi^2(16, N = 2315) = 81.57, p < 0.001\] and was reported by 33-56% of URM and TGGD students (56% of Asian TGGD students, 47% of URM TGGD students, 35% of both URM cisgender men and women, 33% of White TGGD students) but only 15-32% of White and Asian cisgender students (32% of Asian cisgender women, 20% of White cisgender men, 19% of White cisgender women, and 15% of Asian cisgender men).
### Table 3.3 Encounters with Police

<table>
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<tr>
<th></th>
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<th>White Cis Male</th>
<th>White Cis Female</th>
<th>White TGGD</th>
<th>Asian Cis Male</th>
<th>Asian Cis Female</th>
<th>Asian TGGD</th>
<th>URM Cis Male</th>
<th>URM Cis Female</th>
<th>URM TGGD</th>
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<tr>
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<td>11%</td>
<td>103%</td>
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<td>25%</td>
<td>40%</td>
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<td>15%</td>
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<td>40%</td>
<td>61%</td>
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<td>27%</td>
<td>38%</td>
<td>50%</td>
<td>60%</td>
<td>4%</td>
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<td>10%</td>
<td>11%</td>
<td>107%</td>
<td>27%</td>
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<td>6.4%</td>
<td>9%</td>
<td>14%</td>
<td>40%</td>
<td>3%</td>
</tr>
<tr>
<td>Very negative</td>
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<td>68%</td>
<td>2.3%</td>
<td>12%</td>
<td>2.3%</td>
<td>22%</td>
<td>9.4%</td>
<td>8%</td>
<td>1.3%</td>
<td>2.2%</td>
<td>5%</td>
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<tr>
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<td>19%</td>
<td>6.4%</td>
<td>5%</td>
<td>3.9%</td>
<td>6%</td>
<td>4%</td>
<td>9%</td>
<td>9.9%</td>
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<tr>
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<td>20%</td>
<td>47%</td>
<td>17%</td>
<td>77%</td>
<td>17%</td>
<td>163%</td>
<td>27%</td>
<td>18%</td>
<td>11%</td>
<td>28%</td>
<td>60%</td>
</tr>
<tr>
<td>All of the time</td>
<td>76%</td>
<td>1770%</td>
<td>80%</td>
<td>372%</td>
<td>81%</td>
<td>748%</td>
<td>67%</td>
<td>43%</td>
<td>85%</td>
<td>123%</td>
<td>68%</td>
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<td><strong>Academic Impact</strong></td>
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<tr>
<td>Very positive</td>
<td>2%</td>
<td>87%</td>
<td>2.6%</td>
<td>24%</td>
<td>1%</td>
<td>21%</td>
<td>.75%</td>
<td>1%</td>
<td>3.4%</td>
<td>15%</td>
<td>5.5%</td>
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<tr>
<td>Positive</td>
<td>2.5%</td>
<td>117%</td>
<td>1.9%</td>
<td>16%</td>
<td>1.7%</td>
<td>33%</td>
<td>.45%</td>
<td>1%</td>
<td>6.4%</td>
<td>25%</td>
<td>4%</td>
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<td>Neutral</td>
<td>92%</td>
<td>4761%</td>
<td>93%</td>
<td>846%</td>
<td>94%</td>
<td>1867%</td>
<td>85%</td>
<td>96%</td>
<td>88%</td>
<td>355%</td>
<td>92%</td>
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<td>Negative</td>
<td>3.3%</td>
<td>176%</td>
<td>2.1%</td>
<td>22%</td>
<td>2.2%</td>
<td>43%</td>
<td>9.9%</td>
<td>12%</td>
<td>1.3%</td>
<td>6%</td>
<td>33%</td>
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<tr>
<td>Very Negative</td>
<td>.64%</td>
<td>31%</td>
<td>.3%</td>
<td>.67%</td>
<td>12%</td>
<td>3.5%</td>
<td>.65%</td>
<td>.3%</td>
<td>.28%</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Notes.** Table values are weighted percentages and unweighted counts.

***indicates statistical significance ($p < .0001$)
Impacts on Academics. Most respondents (92%) stated that their thoughts and feelings about interaction or potential interaction with police while enrolled at Apple U did not affect their academic performance positively or negatively. However, a small proportion of students reported either positive or negative academic impacts. Again, these perspectives varied across subgroups \[\chi^2(32, N = 5143) = 195.71, p < 0.001\]. Reports of negative academic impacts ranged from 7.0% to 16% for URM and TGGD groups but only from 1.9% to 3.6% for White and Asian cisgender students. More precisely, adverse impacts were cited by 16% of URM TGGD students, 13% of White TGGD students, 12% of Asian TGGD students, 7.7% of URM cisgender men, and 7.0% of URM cisgender women compared with 3.6% of Asian cisgender women, 2.9% of White cisgender women, 2.4% of White cisgender men, and 1.9% of Asian cisgender men. This pattern was almost exactly reversed for positive impacts: the greatest percentage of Asian cisgender students mentioned positive impacts (though only 9.8% of males and 9.6% of females did so), followed by 4.5% of White cisgender men, 3.9% of URM cisgender men, 2.7% of White cisgender women, 2.6% of URM cisgender women, and 1.2% of White TGGD students. No Asian or URM TGGD students reported positive academic impacts.

Attitudes Toward Police

Table 3.4 presents logistic regression results for variations in students’ attitudes toward police presence on campus across groups. Each racial/gender subgroup was compared to White cisgender men.

Sense of Safety. Overall, 70% of respondents reported that a police presence on campus made them feel safe. In particular, most Asian cisgender men (88%), White cisgender men (77%), and White cisgender women (75%) made this statement, with Asian cisgender men having the greatest odds of doing so (OR = 2.36 [1.68, 3.31]). By contrast, compared to White cisgender men, all other racial and gender groups demonstrated lower odds of feeling safe from a police presence: only 25% of URM TGGD students (OR = 0.11 [0.05, 0.25]), 31% of White TGGD students (OR = 0.15 [0.10, 0.24]), 44% of Asian TGGD students (OR = 0.27 [0.12, 0.62]), 57% of URM cisgender women (OR = 0.45 [0.36, 0.57]), 66% of White cisgender women (OR = 0.66 [0.55, 0.78]), and 67% of URM cisgender men (OR = 0.67 [0.51, 0.89]).
<table>
<thead>
<tr>
<th></th>
<th>White Cis Males %</th>
<th></th>
<th>White Cis Females %</th>
<th></th>
<th>White TGGD %</th>
<th></th>
<th>Asian Cis Males %</th>
<th></th>
<th>Asian Cis Females %</th>
<th></th>
<th>Asian TGGD %</th>
<th></th>
<th>URM Cis Male %</th>
<th></th>
<th>URM Cis Female %</th>
<th></th>
<th>URM TGGD %</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Police presence on campus makes me feel safe</strong></td>
<td>75</td>
<td>66</td>
<td>0.66</td>
<td>(.55, .78)</td>
<td>31</td>
<td>0.15</td>
<td>(.10, .24)</td>
<td>88</td>
<td>2.36</td>
<td>(1.68, 3.31)</td>
<td>77</td>
<td>1.10</td>
<td>44</td>
<td>0.27</td>
<td>(.12, .62)</td>
<td>67</td>
<td>0.67</td>
<td>57</td>
</tr>
<tr>
<td><strong>Armed police on campus is good for my mental health</strong></td>
<td>50</td>
<td>28</td>
<td>0.38</td>
<td>(.32, .45)</td>
<td>10</td>
<td>0.11</td>
<td>(.06, .23)</td>
<td>50</td>
<td>0.99</td>
<td>(.78, 1.25)</td>
<td>29</td>
<td>0.40</td>
<td>13</td>
<td>0.15</td>
<td>(.04, .50)</td>
<td>43</td>
<td>0.73</td>
<td>23</td>
</tr>
<tr>
<td><strong>Unarmed police on campus is good for mental health</strong></td>
<td>62</td>
<td>62</td>
<td>0.99</td>
<td>(.84, 1.17)</td>
<td>46</td>
<td>0.54</td>
<td>(.36, .81)</td>
<td>70</td>
<td>1.48</td>
<td>(1.14, 1.92)</td>
<td>71</td>
<td>1.55</td>
<td>52</td>
<td>0.67</td>
<td>(.29, 1.32)</td>
<td>62</td>
<td>1.01</td>
<td>58</td>
</tr>
<tr>
<td><strong>Comfortable with police responding in a mental health crisis</strong></td>
<td>34</td>
<td>21</td>
<td>0.53</td>
<td>(.44, .63)</td>
<td>7.3</td>
<td>0.15</td>
<td>(.07, .35)</td>
<td>40</td>
<td>1.29</td>
<td>(1.01, 1.66)</td>
<td>23</td>
<td>0.58</td>
<td>4.6</td>
<td>0.09</td>
<td>(.01, .71)</td>
<td>29</td>
<td>0.81</td>
<td>17</td>
</tr>
</tbody>
</table>

*Notes.* Boldface indicates statistical significance ($p < 0.05$). Table values are weighted percentages and unadjusted ORs with 95% CIs in parentheses. Comparisons are between the specified gender and racial/ethnic group and White cisgender men.
**Mental Health.** Just slightly more than one-third (37%) of respondents overall considered an armed police presence on campus to be good for their mental health. White cisgender and Asian cisgender men had the highest odds of agreeing with this statement, but only 50% did so. All other student populations had lower odds of agreeing that an armed police presence was good for their mental health, with merely 10% of White TGGD students (OR = 0.11 [0.06, 0.23]), 11% of URM TGGD students (OR = 0.12 [0.04, 0.43]), 13% of Asian TGGD students (OR = 0.15 [0.04, 0.51]), 23% of URM cisgender women (OR = 0.30 [0.24, 0.37]), 28% of White cisgender women (OR = 0.38 [0.32, 0.45]), 29% of Asian cisgender women (OR = 0.40 [0.33, 0.50]), and 43% of URM cisgender men (OR = 0.73 [0.56, 0.96]) agreeing.

Nearly two-thirds of respondents concurred that an unarmed police presence on campus was good for their mental health (63%). Several differences emerged across race and gender identity groups. The following proportions of respondents agreed: Asian cisgender women (71%), Asian cisgender men (70%), White cisgender men (62%), URM cisgender men (62%), White cisgender women (62%), URM cisgender women (58%), Asian TGGD students (52%), URM TGGD students (49%), and White TGGD students (46%). Compared to White cisgender men, Asian cisgender women (OR = 1.55 [1.24, 1.92]) and Asian cisgender men (OR = 1.48 [1.14, 1.92]) had greater odds of agreeing that an unarmed police presence was good for their mental health. Compared to White cisgender men, only White TGGD students had significantly reduced odds of agreeing with this statement (OR = 0.54 [0.36, 0.81].

Although police are often the first responders to students experiencing mental health crises at Apple U, the majority (73%) of respondents reported being uncomfortable with police responding if they were to experience a mental health crisis. Compared to White cisgender men, Asian cisgender men had higher odds of reporting being comfortable with police responding (OR = 1.29 [1.01, 1.66]). In comparison to White cisgender men (34% comfortable), all other groups except URM cisgender men (30% comfortable) had a significantly reduced odds of being comfortable with police responding if they were to experience a mental health crisis. Only 4.6% of Asian TGGD students (OR = 0.09 [0.01, 0.71]), 7.3% of White TGGD students (OR = 0.15 [0.07, 0.35]), 8.5% of URM TGGD students (OR = 0.18 [0.05, 0.63]), 17% of URM cisgender women (OR = 0.41 [0.32, 0.52]), 21% of White cisgender women (OR = 0.53 [0.44, 0.63]), and 23% of Asian cisgender women (OR = 0.58 [0.46, 0.72]) reported being comfortable with this scenario.
Concerns About Campus Police

Respondents reported several concerns about campus police at Apple U, as detailed in Table 3.5. Generally, 59% of respondents indicated that one or more concerns were “a problem” or “a big problem” at Apple U as follows: lack of training (44%), racial profiling (39%), lack of oversight (33%), carrying weapons (32%), too much funding/overspending (32%), and “other” (12%). For each area of concern, a substantial proportion of students reported not knowing enough to say whether the issue was a problem at Apple U: lack of training (28%), racial profiling (28%), lack of oversight (37%), carrying weapons (23%), too much funding/overspending (36%), and “other” (68%). Others reported that the concern “might be a problem” (4.1%–24% across all issues). Few respondents indicated that concerns were “not a problem” at Apple U: carrying weapons (21%), “other” (16%), overspending (14%), racial profiling (9%), oversight (8.8%), and training (8.1%).

Significant differences were observed across racial and gender groups in each concern category (see Table 3.5). Although not statistically examined, a trend manifested for gender: across every concern and racial group, the greatest proportion of TGGD students generally reported the concern as a problem (62–73%) followed by cisgender women (31–58%) and cisgender men (19–42%). Likewise, within gender groups, URM students typically indicated the concern as a problem at higher rates than White and Asian students. For example, 73% of URM TGGD students, 66% of Asian TGGD students, 63% of White TGGD students, 58% of URM cisgender women, 52% of White cisgender women, 51% of Asian cisgender women, 47% of URM cisgender men, 33% of Asian cisgender men, and 31% of White cisgender men cited racial profiling as a problem. Training was the top concern among every racial and gender group; the proportion of respondents stating it was a problem ranged from 33% of Asian cisgender men to 73% of URM TGGD students. White TGGD students were an exception—carrying weapons was their top concern about campus police (74%).
Table 3.5 Concerns about Campus Police

<table>
<thead>
<tr>
<th></th>
<th>Full Sample</th>
<th>White Cis Males</th>
<th>White Cis Females</th>
<th>White TGGD</th>
<th>Asian Cis Males</th>
<th>Asian Cis Females</th>
<th>Asian TGGD</th>
<th>URM Cis Male</th>
<th>URM Cis Female</th>
<th>URM TGGD</th>
<th>χ²</th>
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<td><strong>Racial profiling</strong></td>
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</tr>
<tr>
<td>Not a problem</td>
<td>9</td>
<td>372</td>
<td>14</td>
<td>128</td>
<td>4.9</td>
<td>93</td>
<td>2</td>
<td>1</td>
<td>18</td>
<td>70</td>
<td>3</td>
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<tr>
<td>Might be a problem</td>
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<td>1,121</td>
<td>26</td>
<td>235</td>
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<td>363</td>
<td>12</td>
<td>13</td>
<td>30</td>
<td>116</td>
<td>23</td>
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<tr>
<td>This is a problem</td>
<td>19</td>
<td>1,006</td>
<td>16</td>
<td>144</td>
<td>23</td>
<td>444</td>
<td>23</td>
<td>25</td>
<td>14</td>
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<td>This is a big problem</td>
<td>20</td>
<td>1,190</td>
<td>10</td>
<td>103</td>
<td>24</td>
<td>488</td>
<td>43</td>
<td>53</td>
<td>11</td>
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<tr>
<td>I don’t know enough</td>
<td>28</td>
<td>1,459</td>
<td>33</td>
<td>307</td>
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<td>558</td>
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<td>337</td>
<td>15</td>
<td>134</td>
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<td>926</td>
<td>23</td>
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<td>308</td>
<td>9.8</td>
<td>11</td>
<td>28</td>
<td>109</td>
<td>17</td>
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<tr>
<td>This is a problem</td>
<td>17</td>
<td>893</td>
<td>17</td>
<td>148</td>
<td>20</td>
<td>301</td>
<td>15</td>
<td>16</td>
<td>16</td>
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<td>This is a big problem</td>
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<td>48</td>
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<td>547</td>
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<tr>
<td>Not a problem</td>
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<td>367</td>
<td>15</td>
<td>137</td>
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<td>101</td>
<td>3.7</td>
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<td>16</td>
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<td>317</td>
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<td>27</td>
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<td>11</td>
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<tr>
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<td>23</td>
<td>89</td>
<td>6.8</td>
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<tr>
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<td>881</td>
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<td>177</td>
<td>16</td>
<td>304</td>
<td>8.8</td>
<td>8</td>
<td>22</td>
<td>87</td>
<td>21</td>
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<tr>
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<td>50</td>
<td>59</td>
<td>7.4</td>
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<td>17</td>
</tr>
<tr>
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Notes. Table values are weighted percentages and unweighted counts.

***indicates statistical significance (p < .0001)
**Perspectives on Policy Solutions**

Respondents expressed considerable support for changes to policy and practices pertaining to campus public safety at Apple U (see Table 3.6). Overall, respondents supported (i.e., answers of “support” or “somewhat support”) the following initiatives: increased training for campus police officers (e.g., anti-racism training, mental health training, unconscious bias training) (85% of respondents); increased oversight of campus police (69%); disarming police officers on campus (52%); redirecting funds from policing into community resources (e.g., counseling services, multicultural student affairs/services) (70%); expanding the use of nonsworn, unarmed staff to respond to safety, security, and mental health concerns and decreasing use of police on campus (64%); expanding the use of nonsworn, unarmed staff to respond to safety, security, and mental health concerns and discontinuing use of police on campus (i.e., abolition) (40%); and “other” (changes that respondents wrote in; 15%). Compared with the proportion of respondents (23–68%) indicating that they “didn’t know enough to say” whether specific concerns were problems at Apple U (see Table 3.5), fewer respondents (5.1–15%) stated that they did not know whether they supported the listed policy changes.

Support for each policy change differed significantly across subgroups (see Table 3.6). The variation in support across gender and race mirrored that of problem endorsement. Again, while not statistically tested, the largest percentage of TGGD students generally expressed support for policy changes followed by cisgender women and cisgender men. Overall, URM students indicated support for policy changes at greater rates than White and Asian students. For example, the following proportions of respondents expressed support for disarming campus police: URM TGGD students (91%), White TGGD students (85%), Asian TGGD students (78%), URM cisgender women (67%), White cisgender women (63%), Asian cisgender women (59%), URM cisgender men (49%), White cisgender men (39%), and Asian cisgender men (34%). Respondents demonstrated the most support for increased training, except for White and URM TGGD students who displayed the most support for redirecting funds into community resources (92% and 96% of respondents, respectively).
### Table 3.6 Perspectives on Policy Solutions

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<th>White Cis Females</th>
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χ² values: **342.83***, **180.77***, **714.20***, **516.55***, **369.72***, **375.75***, **71.43***
Discussion

This study reveals that nearly half of all respondents reported interacting with police while attending Apple U. Among them, 15% reported negative interactions and 24% reported unfair treatment. Notably, the frequency, quality, and impacts of these interactions with police varied significantly across racial and gender groups, with higher prevalence rates of negative and unfair encounters and adverse academic impacts among gender and racial minorities. For instance, among URM TGGD students who interacted with police while attending Apple U, 32% experienced negative interactions, 46% experienced unfair treatment, and 16% reported adverse academic impacts from actual or potential police interaction. There are documented associations between personal experiences of unfair treatment by police and adverse mental health outcomes, including depression (e.g., (English et al., 2017)), anxiety (e.g., (Geller et al., 2014), post-traumatic stress disorder (e.g., (Geller et al., 2014), and suicidal ideation and attempts (e.g., (Oh et al., 2017). Thus, the high reported rates of unfair treatment across all students and particularly gender and racial minorities are especially concerning (Dennison & Finkeldy, 2021).

Attitudes about campus police presence were mixed and differed broadly across student groups. While most respondents stated that a police presence on campus made them feel safe, less than half agreed that an armed police presence was good for their mental health. Most (73%) felt uncomfortable with police responding to them during a mental health crisis. According to logistic regression results, URM and TGGD students were less likely than White cisgender men to report benefits of police presence to their safety and mental health and comfort with police response in crises. Across all safety and mental health attitude variables, TGGD students consistently had the lowest odds of reporting benefits of police presence compared to White cisgender men. A race and gender pattern also appeared regarding concerns about campus police, with 32–44% of all respondents endorsing concerns as problems but 60–73% of URM TGGD students doing so.

Support for police-related policy changes at Apple U was widespread, ranging from 85% of respondents supporting increased training to 40% supporting abolition (e.g., expanding use of nonsworn, unarmed staff to respond to safety, security, and mental health concerns and discontinuing use of police on campus). Race and gender trends echoed those involving
respondents’ attitudes and concerns. Generally, TGGD groups—regardless of race—endorsed policy changes most strongly apart from the increased training endorsement among cisgender women. A larger proportion of URM than White and Asian students expressed support for change within gender categories, with URM TGGD students expressing the greatest support for change overall (e.g., 96% for redirecting funds into community resources and 91% for disarming the police).

This population-level research suggests that policing inequitably shapes students’ college experiences, with variation in encounters, attitudes, concerns, and policy support at the intersection of race and gender. Observed variation in contact frequency is important to consider given evidence that more frequent contact (whether vicarious or direct) appears to be a “consistent predictor of stress associated with all types of police contact” for college students (Landers et al., 2011). Future research should examine vicarious contact as well as direct contact as was done in this study and further explore the mechanisms by which accumulated police contact translates into measurable stress among students.

Several overall patterns also merit discussion and further research. Across experiences, attitudes, concerns, and policy perspectives, Asian cisgender men and women had fewer and more positive interactions with, more positive attitudes toward, and fewer concerns about campus police than their URM and sometimes even White peers. One of the few prior studies on police and college students used a single racial minority category, grouping Asian, Black, Hispanic, and other non-White students together. The present study suggests that grouping these populations likely masks inequities faced by URM students and underlines the importance of disaggregating race in future work. Research from outside of higher education has documented differences between the police experiences of Black and Latinx populations (Cheurprakobkit, 2000; Dennison & Finkeldey, 2021; Solis, Portillos, & Brunson, 2009; Weitzer & Tuch, 2004). Scholars should therefore scrutinize differences between Black, Latinx, Arab, and multiracial students and others in the future.

Another consistent pattern was that TGGD students across all race groups more frequently reported negative police interactions, adverse academic impacts, concerns about campus police, and the highest levels of support for policy changes. Scarce empirical research in any setting has considered TGGD individuals’ police experiences (Dwyer, 2011). This study underscores the need to attend to the police experiences of this population. It is especially worth
exploring on college campuses, where TGGD students may be the most likely group to experience mental health crises due to high rates of suicidality in this population (Lipson, Raifman, et al., 2019). However, results from this study suggest that they may be least likely to be comfortable with the police responding. College leaders interested in reducing mental health inequities for TGGD students should consider the policy changes these students support (abolition; disarming police) and nonpolice response to mental health crises on campus. Future work should not only include TGGD students but also explore the variation in campus police experiences and attitudes within this population. Experiences and perspectives may vary across transmasculine, transfeminine, nonbinary, and genderqueer students and based on gender presentation. Future research is also needed to further investigate the impact of race and racism in shaping TGGD students’ police encounters and perspectives. Interpersonal and structural racism and cissexism may interact, such that Black and Latinx TGGD students in particular face disproportionate surveillance and more negative interactions. Future research should further unpack students’ experiences at the intersection of race and gender identity.

Study findings suggest that further research, especially with diverse and representative datasets, is required to more clearly delineate gender differences between cisgender men and females. Research with male and female college students has identified unique concerns, particularly for Black men; this study’s results often pointed to similar experiences, attitudes, concerns, and policy support across cisgender men and cisgender women. Findings also revealed greater concerns and policy support among cisgender women in many cases. White cisgender men and women reported negative and unfair interactions and adverse academic impacts at similar rates. Notably, White cisgender women had a reduced odds of reporting positive attitudes toward police presence for safety, mental health, and crisis response compared to White cisgender men. Conversely, more White cisgender women than men expressed concerns about campus police and support for policy change. Similar gender patterns were observed for URM cisgender men and women. Previous findings might have been skewed by binary conceptualizations of gender. Alternatively, gender may differentially shape police encounters for Black, Latinx, and Arab students such that different patterns may have emerged between cisgender men and females if this study had specifically examined Black students, with whom earlier work occurred. Subsequent studies should examine gender differences across each underrepresented racial group. Regardless, this research substantiates documented adverse
impacts of policing on women outside of higher education by activists and scholars and calls for more attention to women’s experiences with police (Crenshaw, Ritchie, Anspach, Gilmer, & Harris, 2015; Fedina et al., 2018; Ritchie, 2017; Sewell et al., 2020).

These findings also extend qualitative research addressing the negative implications of campus policing for Black students’ mental health (Jenkins et al., 2020; Smith et al., 2007). In the current sample, most students did not perceive campus policing, in its current armed form, as good for their mental health. Most were also uncomfortable with police responding to them in a mental health crisis. These patterns lend support to scholars suggesting that law enforcement encounters have been overlooked as a “significant and ongoing source of potential mental health risk” for college students (Landers et al., 2011). College administrators, policymakers, and mental health advocates should be aware that almost two-thirds of college students appear not to see armed police on campus as good for their mental health. Additional work is needed to further investigate the impact of campus policing on students’ mental health. How different student populations interpret what it means for policing to be or not be “good” for one’s mental health can be explored in greater depth. Moreover, researchers should conduct correlational and causal studies to examine how campus police presence and positive and negative encounters with police while in college shape a range of psychosocial outcomes. Outcome measures could include clinically validated mental health screens assessing symptoms of mental health disorders; scales assessing belonging, flourishing, and wellbeing; and biological markers of stress.

In the meantime, given that URM and TGGD students—groups that face significant mental health inequities on campus (Lipson et al., 2018; Lipson, Raifman, et al., 2019)—are most likely to disagree that campus police are good for their mental health and report discomfort with police responding to them in a mental health crisis, changes to colleges’ investment in law enforcement and policing policies may offer an institutional mechanism to enhance mental health equity. Most students in this study’s sample would support changes such as redirecting funds from policing into community resources and expanding the use of nonsworn, unarmed staff to respond to mental health concerns—a strategy with mounting evidence of effectiveness outside of higher education (Beck, Reuland, & Pope, 2020; Butler & Sheriff, 2020; Compton et al., 2008; Kane, Evans, & Shokraneh, 2018; Morabito et al., 2012; Morabito, Watson, & Draine, 2013; Scott, 2000; Watson & Fulambarker, 2012; Watson et al., 2010). An increasing number of cities and higher education institutions are developing programs to send medics, social workers,
crisis responders, and/or peer mental health paraprofessionals—either together with or in place of police officers—to respond to individuals in mental distress (Lanser et al., 2021; Margolis & Shtull, 2012; Nickeas, 2021; Segal, 2016; Waters, 2021; Weissman, 2020b). These response teams are “extensively trained in de-escalation, have the appropriate training to assess both risk and treatment needs” and are better equipped than law enforcement to connect individuals with mental health treatment needs beyond inpatient hospitalization to community supports (Lanser et al., 2021, p. 2). The present study suggests that most students would support such actions on the part of colleges and universities and that these changes would carry benefits for TGGD and URM students.

**Limitations, Strengths, and Conclusions**

This study is not without limitations. The sample was drawn from a single Midwestern university; thus, the generalizability of findings is unclear. Experiences with and attitudes toward campus police and college law enforcement policy could vary between urban and rural colleges, schools in different geographic regions, or based on other institutional characteristics. The response rate, while typical for online surveys (Eisenberg, Gollust, Golberstein, & Hefner, 2007), was low, raising further questions about generalizability. However, this research involved a large, random sample of Apple U’s student body, and survey weighting was applied to all prevalence rates to adjust for differences between responders and nonresponders. Results therefore offer the most representative understanding of a full student body’s experiences with and perspectives on campus police to date. Future multi-institution research will allow for studying how institutional characteristics shape students’ experiences and perspectives as well as how variation in institutions’ policing investments and practices shape student outcomes.

It is worth noting that this study may underestimate the typical prevalence of police encounters among college students. Students were asked to report on their police encounters while a student at Apple U. For all currently enrolled students, this period overlapped with the COVID-19 pandemic. As a result, many students were engaged in remote learning from off-campus for several months and nationwide “stay at home” orders may have reduced exposure to and contact with police. Representative prevalence estimates of police contact, such as were collected through this study, must be gathered over time to understand how remote learning and “stay at home” orders impact college student police encounters.
As one of the first quantitative studies of students’ encounters with and views on campus policing, no instruments that have been psychometrically evaluated with college populations were available to use in the survey design. Future work should assess the psychometric properties of measures used in this research, paying particular attention to reliability and validity across racial and gender groups. This study presents simple descriptive analyses of measures assessing students’ subjective views on campus police experiences and impacts. Subsequent studies could integrate objective measures of police contact and potential outcomes, such as from institutional records on police activity and students’ academic outcomes. Research is also needed to examine the predictors of students’ police experiences, attitudes, and concerns as well as the academic and mental health outcomes associated with frequent, negative, and unfair contact with campus police. Much remains to be understood about what shapes students’ encounters with police and the impacts of campus police presence. Direct and vicarious prior experience with police likely plays a role (Campbell & Valera, 2020; Dennison & Finkeldey, 2021; Turney, 2020; Weitzer & Tuch, 2004). After all, 54% of students in this study reported no police encounters while in college but still endorsed perspectives on and concerns about campus police presence. Were these shaped by peer experiences at Apple U or while growing up? Viral documentation of police violence occurring nationally? Personal encounters with police prior to college? Mixed methods research can examine these possibilities and others. An alternative explanation may lie in existing research that identifies campus policing as an interpersonal racial stressor—impacting students and shaping their perspectives through direct encounters—as well as a structural stressor that shapes the campus racial climate and impacts students irrespective of direct contact (Landers et al., 2011; Mills, 2020; Solorzano et al., 2000).

Despite some limitations and avenues for future work, this research provides an initial quantitative, representative estimate of the prevalence of police encounters across a diverse student body. It is the first study, to my knowledge, on campus police to describe the experiences of TGGD students. Findings reveal that this population commonly reports negative encounters, harmful impacts to safety and mental health, and greater concerns than their cisgender peers. This work uniquely considers race and gender collectively, shedding light on how marginalization at the intersection of racism and cissexism may increase students’ risks with campus police. I present the first available data on students’ perspectives on public safety policy changes being considered by institutions across the country. Results reflect overwhelming
student support for revision to current practices, including majority support for redirecting funds from policing to community resources (70%), expanding the use of non-sworn, unarmed staff to respond to safety, security, and mental health concerns (64%), and disarming campus police (52%); and substantial support (40%) for a major change: abolishing campus policing. This study also showcases the impacts of campus policing on academics (neutral for most but negative for as many as one-sixth of URM and TGGD students) and mental health (not positive for most in its current form but positive in an unarmed form) and paves the way for more formal evaluations of how institutional investment in campus policing shapes the range of student outcomes that these agencies claim.
CHAPTER 4: Protective Policies at Colleges and Universities and Psychosocial Outcomes Among Transgender and Gender Diverse College Students

Introduction

Transgender and gender diverse (TGGD) college students—students whose gender identity or expression differs from their assigned sex at birth or does not fit within the male–female binary—face some of the most significant psychosocial inequities on college campuses (Hendricks & Testa, 2012; Lipson, Raifman, et al., 2019). Each year, 35% of TGGD students contemplate suicide, compared to 10% of cisgender students (Lipson, Raifman, et al., 2019; Oswalt & Lederer, 2017). TGGD students experience more mental health problems than their cisgender peers and a reduced sense of belonging at school (Beemyn, Curtis, & Davis, 2005; Bilodeau, 2007; Dugan, Kusel, & Simounet, 2012; Lipson, Raifman, et al., 2019; Oswalt & Lederer, 2017; Parr, 2020; Robinson & Espelage, 2011). Sense of belonging is a widely examined indicator of psychosocial wellbeing in the education literature, known to be shaped by school practices and climate (Goldberg et al., 2018; Mounts, 2004; O’Meara, Griffin, Kovaeva, Nyunt, & Robinson, 2017; Ribera, Miller, & Dumford, 2017; Strayhorn, 2012; Vaccaro & Newman, 2017) and to impact mental health and academic outcomes (Bensimon, 2007; Hausmann, Schofield, & Woods, 2007; Hausmann et al., 2009; Osterman, 2000; Pittman & Richmond, 2008; Shochet et al., 2006; Walton & Cohen, 2011).

Psychosocial disparities faced by TGGD populations, including college students, are attributed to minority stressors. These are excess stressors “individuals from stigmatized social categories are exposed as a result of their social, often a minority, position” (Meyer, 2003, p.675). They are pervasive for TGGD students in our cissexist, transphobic U.S. society and higher education system (Bilodeau, 2007; Messman & Leslie, 2019; Renn, 2010). Minority stressors operate across all levels of the socioecological model in the form of anti-transgender stigma and result in adverse health outcomes among TGGD populations (Hendricks & Testa, 2012; White Hughto et al., 2015). The gender minority stress model (Hendricks & Testa, 2012) describes interpersonal minority stressors, such as discrimination, victimization, and bullying.
due to being a TGGD individual, which may result from lacking basic legal protections in many states and institutions (Movement Advancement Project, 2017). Lack of legal protections and anti-transgender legislation are forms of structural stigma (White Hughto et al., 2015). In 2021 there was an extraordinary attack on transgender rights, primarily targeting children and young adults, with more anti-transgender bills proposed by state lawmakers than any year previously (Levin, 2021).

Research to date has primarily focused on individual and interpersonal forms of stigma and intervention but structural stigma and structural interventions, which involve institutional policies, practices, and norms, are important and understudied factors shaping TGGD health (National Academies of Sciences, Engineering, 2020; Pitcher et al., 2018; White Hughto et al., 2015). Off campus, growing evidence indicates that protective state policies (e.g. extending rights or prohibiting discrimination) can improve mental health for TGGD adults and sexual minorities and thereby improve educational outcomes and potentially save lives (Gleason et al., 2016; Hatzenbuehler & Keyes, 2013; Raifman et al., 2018). Given hostile state contexts and high levels of anti-transgender stigma and violence in schools (Robinson & Espelage, 2011; Seelman et al., 2017; Toomey et al., 2012; Woodford, Kulick, et al., 2014), policies and practices at colleges and universities to reduce anti-transgender stigma and provide equal opportunities for TGGD college students may be important for improving TGGD student psychosocial outcomes.

**Institutional Policies for Improving Psychosocial Outcomes**

Based on the advocacy of TGGD students themselves and evidence from settings outside of higher education, three institutional policies and practices increasingly implemented by colleges and universities stand out as holding potential for improving psychosocial outcomes through reducing suicidal ideation and enhancing sense of belonging among TGGD students. In campus activism and qualitative research, TGGD students stress the importance of schools: 1) making efforts to protect students from discrimination through expanding nondiscrimination policies to include gender identity and expression, 2) allowing students to identify their name and pronouns on campus records, and 3) providing access to gender inclusive restrooms (Beemyn et al., 2005; Beemyn, 2005; Beemyn, 2019; Goldberg et al., 2018, 2019; Goldberg, Smith, & Beemyn, 2020; Pitcher et al., 2018; Sausa, 2005; Seelman, 2014a). For example, in a mixed-methods study, 507 TGGD college students were asked about the perceived importance of 17 trans-inclusive policies; they identified gender-inclusive restrooms, nondiscrimination
policies that are inclusive of gender identity, and the ability to change one’s name and indicate pronouns on campus records without legal name change as the most valued supports (Goldberg et al., 2018). These same policies were stressed as important in other qualitative studies with nonbinary (Beemyn et al., 2005; Beemyn, 2005), transgender (Seelman, 2014a), and TGGD graduate (Goldberg et al., 2019) students. In their own words (excerpted from Goldberg et al., 2018), students shared:

“I want a school-wide policy that has ZERO tolerance for not only outright discrimination, but for repeatedly failing to recognize students'/faculty’s/staff’s gender, pronouns, and preferred name.” -White transgender man

“I want name changes to be on records without requiring legal documents...needing to explain your name and pronouns to every new professor, and dreading knowing that they’ll probably read your birth name out loud to the class, is extremely stressful and miserable and embarrassing.” -Nonbinary student of color

“We need gender neutral bathrooms across campus in every single building, and badly.” -Genderfluid student of color

Inclusive nondiscrimination policies hold potential for reducing bullying, microaggressions, and violence in schools, which interferes with belonging and increases suicidal thoughts (Kosciw, Greytak, & Diaz, 2009; Nadal, Rivera, et al., 2010; Nadal, Skolnik, & Wong, 2012; Russell et al., 2014; Seelman et al., 2017; Stolzenberg & Hughes, 2017). Opportunities to change names and indicate pronouns may help reduce the extent to which TGGD college students are “misgendered, outing, and invalidated by faculty members throughout their academic day” (Knutson et al., 2021, p. 7; Matsuno, 2019). Gender inclusive restrooms may help reduce incidents of harassment as well as daily anxiety among TGGD students about their safety in school facilities (Goldberg et al., 2018; Seelman, 2016; Weinhardt et al., 2017; Woodford, Joslin, Pitcher, & Renn, 2017).

Research has not yet measured how these school policies shape disparities in psychosocial outcomes between TGGD and cisgender college students (National Academies of Sciences, Engineering, 2020; Pitcher et al., 2018; Woodford et al., 2017). But, evidence from other settings and populations suggests that the policies hold promise for reducing suicidal ideation and enhancing sense of belonging among TGGD college students (Hatzenbuehler & Keyes, 2013; Kull et al., 2016; National Academies of Sciences, Engineering, 2020). For
example, nondiscrimination policies at institutions of higher education inclusive of gender identity (in addition to sexual orientation) were found to be directly associated with reduced discrimination experiences among sexual minority students, which was associated with less psychological distress (Woodford et al., 2018). Gleason and colleagues (2016) found that living in states with nondiscrimination laws that cover gender minorities was associated with lower rates of perceived stigma at the community level and, indirectly, reduced rates of discrimination, victimization, psychological distress, and lifetime suicide attempts among a convenience sample of 120 TGGD adults. Within a larger composite measure of state-level structural stigma, state-level discrimination policies enumerating sexual orientation were associated with reduced lifetime suicide attempts among TGGD adults (Perez-Brumer et al., 2015). Du Bois et al. (2018) found that living in states with more protective and fewer discriminatory laws for TGGD individuals, such as protection from discrimination in schools and ability to change name and gender on identifying documents, predicted fewer poor mental health days. The psychosocial impact of school policies that allow students to identify their name and pronouns on records has not been evaluated but chosen name use in multiple contexts, including school, is linked to reduced suicidal behavior among TGGD youth (Russell et al., 2018). Likewise, the effects of offering gender inclusive restrooms has not been evaluated but higher rates of lifetime suicidal ideation have been reported among TGGD adults who recall a lack of gender inclusive restrooms during their college days (Seelman, 2016) and state bills that prevent TGGD people from accessing bathrooms consistent with their gender identity threaten their health (Reisner, Hughto, et al., 2015; Wang, Solomon, Durso, McBride, & Cahill, 2016).

**Visibility of Inclusion Policies**

An important, understudied aspect of how institutional policies and practices may shape health outcomes is the extent to which they are promoted and known. Though the work above offers some preliminary support for the utility of inclusive nondiscrimination, name and pronoun, and restroom policies in reducing poor psychosocial outcomes, the studies only measured policy presence (as determined by an outsider). The presence of a policy does not mean it is known. In fact, TGGD students express concerns about this in qualitative studies of inclusion policies and stress the need for policies to be promoted, publicized and known (Goldberg et al., 2018). The degree to which inclusive practices are visible to TGGD students...
and the student body more generally may have an interactive impact on psychosocial outcomes, specifically suicidal ideation and sense of belonging, and inequities in these outcomes.

In one of the few studies to include psychosocial inequities as an outcome, researchers found that the presence of inclusive policies alone is insufficient for eliminating suicidal ideation inequities based on sexual orientation (Meyer, Luo, Wilson, & Stone, 2019). The visibility of inclusive policies and practices may be crucial missing piece for reducing suicidal ideation and sense of belonging inequities. When policies and practices are known across the student body, this may convey institutional commitment and establish inclusive norms on campus, shaping climate, sense of belonging and mental health (Rankin & Reason, 2008). For specific policies, visibility may also foster greater levels of adherence and impact psychosocial outcomes by shaping students’ actual experiences on campus. Almost no research has measured the visibility of inclusive school policies. However, in one of the only studies to do so, it was found to be associated with middle and high school climate for gender non-conformity, which has relevance for belonging and mental health (Toomey et al., 2012). Personal awareness of inclusive school policies, as well as general visibility, may also impact suicidal ideation and sense of belonging. Goldberg and colleagues (2018) found that being personally aware of a greater number of trans-inclusive school policies was associated with enhanced sense of belonging and positive perceptions of the campus climate among a convenience sample of 507 TGGD college students. However, they did not measure policy visibility and personal awareness in the absence of general visibility could have a different effect on the individual who is aware of a policy to which most of their peers are oblivious.

**Current Study**

The current study will examine the visibility of 3 school policies valued by TGGD college students: 1) a nondiscrimination policy that includes gender identity and expression, 2) a policy or procedure allowing students to indicate their name and pronoun on campus records (e.g. course rosters and directory listings), and 3) the provision of gender-inclusive restroom options (Goldberg et al., 2018). I will consider the interacting effects of personal awareness of the policies and policy visibility at the institution and examine associations with sense of belonging and suicidal ideation among TGGD and cisgender students and sense of belonging and suicidal ideation disparities between the groups. To isolate the unique effects of students and student bodies knowing about TGGD-supportive policies, I will control for awareness of other
school policies meant to create inclusive and equitable campuses that may be implemented in tandem with TGGD-supportive policies and could serve as confounders. I hypothesize that TGGD inclusion policy visibility and personal awareness will be associated with enhanced psychosocial outcomes (i.e., reduced suicide ideation and improved sense of belonging) among TGGD students and that policy visibility will be associated with a reduction in disparities in psychosocial outcomes between TGGD and cisgender students.

The research is designed to address several gaps in the existing literature. It turns attention to institutional policy in higher education, rarely studied for its impact on TGGD students. It expands existing work by including both TGGD and cisgender students and directly examining psychosocial inequities as an outcome. In addition, it investigates a novel construct, policy visibility, and tests for interactions with policy awareness. Importantly, this study addresses a limitation of past research by controlling for visibility and awareness of other institutional inclusion practices, which could correlate with TGGD-inclusion policy visibility and awareness. Unlike most research with TGGD students in higher education, this research includes large, representative samples from multiple institutions, providing insight on how considerable variation in TGGD-inclusion across institutions shapes student outcomes (Goldberg et al., 2018).

**Methods**

**Participants and Procedures**

This study used Healthy Minds Survey (HMS) data from 28 colleges and universities that participated in the Climate for Diversity and Inclusion Survey between September 2018 and December 2019. HMS is an annual web-survey examining mental health and related factors among undergraduates and graduates (Golberstein, Eisenberg, & Gollust, 2008; Lipson et al., 2016). Colleges and universities elect to participate. Participating schools reflect a wide range of institutional types, locations, sizes, graduation rates, and residential characters.

HMS was approved by Institutional Review Boards on all campuses. An NIH Certificate of Confidentiality provided further protections. Data were collected using Qualtrics software. A random sample of 4,000 degree-seeking students was recruited from each institution (approximately 86,500 in total). Students were 18+ years old, with no other exclusions. Students were recruited via personalized links embedded in emails, signed by a school administrator, and leading to informed consent pages with terms of participation and the survey. Those participating were entered into a lottery to win one of several prizes totaling $2000 annually.
The overall response rate across all participating schools was 18%, which is consistent with other online surveys (Eisenberg, Golberstein, et al., 2007). To adjust for potential differences between student responders and non-responders, HMS constructs sample probability weights. Administrative data are obtained from participating institutions, including sex, race/ethnicity, academic level, and grade point average. These data are then used to construct response weights, equal to 1 divided by the estimated probability of response, using a logistic regression to predict the likelihood of response associated with each variable. Thus, weights are larger for respondents with under-represented characteristics, ensuring that estimates are representative of the student body at each school in terms of these known characteristics (Lipson et al., 2015; Lipson, Raifman, et al., 2019).

**Measures**

**Dependent Variables: Sense of Belonging.** Sense of belonging was measured with two items that have been used in prior studies (Bollen & Hoyle, 1990; Dugan et al., 2012; Goldberg et al., 2018). Students were asked to consider their experiences over the past 12 months and indicate the extent to which they agree or disagree (on a 5-point Likert scale) with the following statements: (a) I feel valued as an individual at this school and (b) I feel I belong at this school. Scores were averaged, and higher scores indicate a greater sense of belonging (possible range 0-5, $\alpha = .84$).

**Suicidal Ideation.** Suicidal ideation was assessed with one item, widely used with youth and young adults, including TGGD populations (Mueller, James, Abrutyn, & Levin, 2015; Turban, Beckwith, Reisner, & Keuroghlian, 2020). Students were asked if they ever seriously thought about attempting suicide in the past year (yes or no). Two institutions utilized a different measure of suicidal ideation and were, therefore, not included in the suicidal ideation model and analyses.

**Independent Variables: Gender Identity.** TGGD students were identified based on students’ responses to 2 survey questions: (1) What was your assigned sex at birth? (response options: female, male, intersex) and (2) What is your current gender identity? (female, male, trans female/trans woman, trans male/trans man, genderqueer/gender nonconforming and self-identify). Two independent reviewers assessed the write in responses provided by students self-identifying their gender. Sixteen respondents were mutually identified as providing responses that were not a gender identity (e.g., “apache helicopter”) and
were dropped from the sample. Then, students who indicated their gender identity was trans, genderqueer/gender nonconforming or self-identified were classified as TGGD, as were students whose current gender identity does not match their indicated sex assigned at birth (National Academies of Sciences, Engineering, 2020; Reisner, Conron, et al., 2015).

**Policy Awareness and Visibility.** Students were asked which of several policies and practices were present at their college or university (single item). To create my TGGD policy scales, students were given one point for each of the following policies they indicated were present at their institution: 1) Comprehensive nondiscrimination policy that includes race, sex, gender identity and expression, sexuality, color, religion, creed, national origin or ancestry, age, and marital status, 2) Gender neutral/inclusive bathroom options, 3) Policy or procedure allowing students to indicate their preferred name and pronoun on campus records (e.g. course rosters and directory listings). Scores were summed and averaged such that the scale ranged from 0-1, with 0 reflecting awareness of none of the policies and 1 reflecting awareness of all three. A variable to quantify the visibility of TGGD-supportive policies was created by taking the average across all students at each school (applying survey weights). Since policy visibility ranged from .21 to .76 in my sample and 75% of students attended a school where policy visibility ranged between .31 and .51, I present my findings at three logical, evenly spaced values within this range: low (1 policy), average (1.25 policies), and high (1.5 policies) visibility.

**Covariates: Awareness and Visibility of Other Inclusive Policies.** I controlled for personal awareness and visibility of other school inclusion policies to isolate the unique impact of knowledge of TGGD-supportive policies. Following the exact same procedure as described for TGGD policies above (including applying survey weights), I created variables reflecting personal awareness and visibility of Student Life Inclusion policies and practices (having a multicultural center, LGBTQ Center, and/or race, ethnicity, diversity or related course requirement) and Inclusive Leadership Policies (having a diversity, equity and inclusion strategic plan and/or Chief Diversity Officer or senior-level administrator focused on Diversity, Equity and Inclusion at the institution).

**Student Background Characteristics.** Control covariates included mutually exclusive dummy variables (0/1) for age (<23, 23+), race/ethnicity (student of color vs. white), international students (yes vs. no), sexual orientation (sexual minority or not), campus housing (living in campus housing vs. not), and parent education (first generation college student vs. not).
Students who identified their race/ethnicity as “African American/Black, American Indian or Alaskan Native, Asian American/Asian, Hispanic/Latin(x), Native Hawaiian or Pacific Islander, Middle Eastern, Arab, or Arab American, or Self-Identify” were classified as students of color (SOC) and students who only selected “White” were classified as White. Students who selected “Lesbian; Gay; Bisexual; Queer; Questioning; Self-Identify” as their sexual orientation were classified as sexual minorities and those who indicated “heterosexual” were not. For campus housing, students were asked where they currently live. Those who indicated “on-campus housing, residence hall; on-campus housing, apartment; fraternity or sorority; on- or off-campus cooperative housing” were classified as living in campus housing and those who indicated “off-campus, non-university housing; off-campus, with my parents (or relatives), other” were classified as not living in campus housing. Students who indicated that the highest level of education completed by any of their parents or stepparents was an Associates degree or less were classified as first-generation. Parent education is a commonly used measure of SES in studies of young adults (Currie, Elton, Todd, & Platt, 1997; Lien, Friestad, & Klepp, 2001; Svedberg, Nygren, Staland-Nyman, & Nyholm, 2016). The small number of TGGD students in the sample unfortunately did not allow for looking at differences within the broad groups described here (e.g., African American/Black TGGD students or Bisexual TGGD students).

**School Characteristics.** Controls for school size (<3,000 students, 3,000-9,999, 10,000+ based on Carnegie Foundation’s classification), ownership (public vs. private), graduation rate (≥ 60% vs. < 60%, according to U.S. News and World Report Rankings), residential status (residential: ≥25% of degree-seeking undergraduates live on campus and at least 50% attend full time vs. not, based on Carnegie Foundation’s classification), competitiveness (highly and most competitive (1+2) vs. not, according to Barron’s Profiles of American Colleges selectivity scores), and region (Northeast, South, West, Midwest) were included at the school level.

**Statistical Analysis**

I analyzed data using STATA, version 15, and fit mixed effect regression models to understand the relationships between policy visibility and psychosocial outcomes for TGGD and cisgender students. All models used the sample probability weights described above. None of the outcomes or covariates were missing more than 3% of responses; therefore, all missing data were dropped from the data set, resulting in a sample of 15579 students from 28 institutions. Multicollinearity was assessed, and a VIF under 10 confirmed that none of the variables were too
closely associated with each other. Descriptive statistics and t-test and chi-square statistics were computed to compare differences between TGGD and cisgender students. A correlation table was drawn using Pearson’s correlations. An alpha level of 0.05 was used to determine significance for all analyses.

I used a logistic mixed effect regression for my binary outcome (suicidal ideation) and linear mixed effect regression for my continuous outcome (belonging). To account for the clustering of data by school, a random intercept was included for each school. It is possible that the relationship between policy visibility and outcomes of interest depends on students’ personal awareness. Likewise, it is possible that the impact of personal awareness depends on policy visibility at the institution; and the impact of any interaction between personal awareness and institutional visibility could well vary between TGGD and cisgender students. I, therefore, included three-way interactions in all models, interacting policy visibility with personal policy awareness and TGGD status. I did so with all 3 policy scales to identify the unique contribution of TGGD supportive policies. I adjusted all models for all student and school characteristic covariates.

To test my first hypothesis, I estimated the relationship between policy visibility and my outcomes in the 8 groups defined by gender and personal awareness (i.e. for TGGD and cisgender students personally aware of 0,1,2 and 3 policies; see Figure 4.1). I next estimated the relationship between personal awareness and my outcomes for TGGD and cisgender students attending schools with low, average, and high policy visibility (Figure 4.2). In the linear model, with my continuous belonging outcome, the relationship is represented by a slope and in the logistic model, with my binary suicidal ideation outcome, the relationship is represented by an odds ratio.

To test my second hypothesis, I obtained the difference in adjusted predicted outcomes for TGGD and cisgender students at different levels between low (1 policy) and high (1.5 policies) policy visibility from the models (see Figure 4.3). I tested whether those differences were different from zero at low, median, and high policy visibility.

Results

Study Sample

As detailed in Table 4.1, the sample included 15579 participants from 28 colleges and universities across the United States. Overall, 97.3% identified as cisgender (n=15241) and 2.7%
as TGGD \((n=338)\); Among TGGD students, 30% identified as transgender men, 7.8% identified as transgender women, 51% identified as genderqueer, and 12% self-identified their gender. Among cisgender students, 58% identified as women and 42% identified as men. The majority of participants \((67\%)\) were 18-23 years old. Nearly two-thirds of the sample overall was White and 37% were SOC; among TGGD participants, 73% were White. The majority of TGGD participants identified as a sexual minority \((89\%)\); 17% of cisgender participants did. Overall, 30% of participants were first-generation, 8% were international, and 43% lived in campus housing. The majority of participants attended a large \((45\%)\), public \((62\%)\), residential \((86\%)\) institution. But 31% attended a small school and 24% attended a medium sized school. 38% of participants attended a school with a graduation rate of less than 60%. Participants attended institutions in the Northeast \((35\%)\), Midwest \((26\%)\), South \((31\%)\) and West \((8.1\%)\).

Descriptive statistics for my key outcomes and predictors are also documented in Table 4.1. On average, cisgender participants agreed with feeling a sense of belonging and being valued in school \((M = 3.62, SD = .96)\). In comparison, TGGD participants had a significantly lower sense of belonging \((M = 3.26, SD = .84)\), closest to neither agreeing nor disagreeing with feeling a sense of belonging, \(t(15,459) = -3.26, p = .003\). Thoughts of suicide in the past year were present for 14% \((n=1828)\) of participants overall but for 35% \((n=113)\) of TGGD students and 13% \((n=1715)\) of cisgender students, \(t(14,774) = 5.26, p < .001\).

In my sample, TGGD-inclusion policy visibility ranged from a school where students were, on average, aware of less than 1 of the 3 policies \((.21)\) to a school where students were, on average, aware of more than 2 and almost all 3 of the policies \((.76)\). Mean policy visibility was almost 1.5 policies \((M=0.47, SD = 0.15)\) for TGGD participants but closer to 1 policy \((M=0.40, SD=0.14)\) for cisgender participants, \(t(15,577) = 3.16, p = .004\). Across individuals in my sample, students were aware of between 0 and all 3 of the policies, with 37.4% of participants aware of none of the policies, 22.9% aware of one policy, 20.4% aware of two policies, and 19.4% aware of all three policies. On average, participants were aware of almost 1.25 policies \((M = 0.41, SD = 0.38)\). Average personal awareness was significantly larger among TGGD participants \((M = 0.53, SD = 0.35)\) than among cisgender participants \((M = 0.40, SD = 0.38)\), \(t(15,577) = 3.45, p = .002\).
Table 4.1 Descriptive Statistics of Sample and Study Variables (N = 15579)

<table>
<thead>
<tr>
<th>Student Characteristics</th>
<th>Full Sample</th>
<th>TGGD Students</th>
<th>Cisgender Students</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transgender or Gender Diverse (TGGD)</td>
<td>2.7%</td>
<td>100%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Sex Assigned at Birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>58%</td>
<td>78%</td>
<td>57%</td>
<td>0.000</td>
</tr>
<tr>
<td>Male</td>
<td>42%</td>
<td>22%</td>
<td>42%</td>
<td>0.000</td>
</tr>
<tr>
<td>Intersex</td>
<td>0.03%</td>
<td>0.51%</td>
<td>0.02%</td>
<td>0.002</td>
</tr>
<tr>
<td>Gender Identity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cisgender Male</td>
<td>41%</td>
<td>0</td>
<td>42%</td>
<td></td>
</tr>
<tr>
<td>Cisgender Female</td>
<td>56%</td>
<td>0</td>
<td>58%</td>
<td></td>
</tr>
<tr>
<td>Transgender Male</td>
<td>0.81%</td>
<td>30%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Transgender Female</td>
<td>0.21%</td>
<td>7.8%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Genderqueer</td>
<td>1.4%</td>
<td>51%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Self-Identify</td>
<td>0.32%</td>
<td>12%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-23</td>
<td>67%</td>
<td>78%</td>
<td>67%</td>
<td>0.008</td>
</tr>
<tr>
<td>23+</td>
<td>33%</td>
<td>22%</td>
<td>33%</td>
<td>0.008</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>63%</td>
<td>73%</td>
<td>62%</td>
<td>0.022</td>
</tr>
<tr>
<td>Black</td>
<td>6.4%</td>
<td>4.1%</td>
<td>6.5%</td>
<td>0.276</td>
</tr>
<tr>
<td>Hispanic</td>
<td>12%</td>
<td>6.3%</td>
<td>12%</td>
<td>0.005</td>
</tr>
<tr>
<td>Asian</td>
<td>13%</td>
<td>5.6%</td>
<td>5.1%</td>
<td>0.003</td>
</tr>
<tr>
<td>Multiethnic</td>
<td>5.2%</td>
<td>9.6%</td>
<td>1.5%</td>
<td>0.035</td>
</tr>
<tr>
<td>Other</td>
<td>1.5%</td>
<td>1.8%</td>
<td>3.6%</td>
<td>0.641</td>
</tr>
<tr>
<td>Sexual Minority</td>
<td>19%</td>
<td>89%</td>
<td>17%</td>
<td>0.000</td>
</tr>
<tr>
<td>First Generation Student</td>
<td>30%</td>
<td>26%</td>
<td>30%</td>
<td>0.356</td>
</tr>
<tr>
<td>International Student</td>
<td>8.0%</td>
<td>3.6%</td>
<td>8.1%</td>
<td>0.013</td>
</tr>
<tr>
<td>Live in Campus Housing</td>
<td>43%</td>
<td>59%</td>
<td>43%</td>
<td>0.002</td>
</tr>
<tr>
<td>School Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>31%</td>
<td>56%</td>
<td>31%</td>
<td>0.000</td>
</tr>
<tr>
<td>Medium</td>
<td>24%</td>
<td>13%</td>
<td>24%</td>
<td>0.020</td>
</tr>
<tr>
<td>Large</td>
<td>45%</td>
<td>31%</td>
<td>45%</td>
<td>0.021</td>
</tr>
<tr>
<td>Public</td>
<td>62%</td>
<td>61%</td>
<td>62%</td>
<td>0.911</td>
</tr>
<tr>
<td>Private</td>
<td>38%</td>
<td>39%</td>
<td>38%</td>
<td>0.911</td>
</tr>
<tr>
<td>Residential</td>
<td>86%</td>
<td>89%</td>
<td>86%</td>
<td>0.376</td>
</tr>
<tr>
<td>Graduation Rate &lt;60%</td>
<td>38%</td>
<td>31%</td>
<td>38%</td>
<td>0.337</td>
</tr>
<tr>
<td>Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>35%</td>
<td>31%</td>
<td>36%</td>
<td>0.588</td>
</tr>
<tr>
<td>Midwest</td>
<td>26%</td>
<td>25%</td>
<td>26%</td>
<td>0.972</td>
</tr>
<tr>
<td>South</td>
<td>31%</td>
<td>38%</td>
<td>30%</td>
<td>0.399</td>
</tr>
<tr>
<td>West</td>
<td>8.1%</td>
<td>5.6%</td>
<td>8.2%</td>
<td>0.315</td>
</tr>
<tr>
<td>Outcomes and Predictors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sense of Belonging</td>
<td>3.61</td>
<td>3.26</td>
<td>3.62</td>
<td>0.003</td>
</tr>
<tr>
<td>Suicidal Ideation</td>
<td>14%</td>
<td>13%</td>
<td>13%</td>
<td>0.000</td>
</tr>
<tr>
<td>TGGD Policy Visibility</td>
<td>0.41</td>
<td>0.47</td>
<td>0.40</td>
<td>0.004</td>
</tr>
<tr>
<td>TGGD Policy Personal Awareness</td>
<td>0.41</td>
<td>0.53</td>
<td>0.40</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Notes. Table values are weighted percentages and unweighted counts. Boldface indicates statistical significance.
As shown in Table 4.2, significant bivariate correlations existed between my psychosocial outcome measures and school policy visibility and awareness as well as many student and institutional characteristics. Personal awareness of all three types of school inclusion policies (TGGD supportive policies, Student Life policies and Leadership policies) was positively correlated with sense of belonging. Visibility and awareness of inclusive school leadership policies was associated with reduced suicidal ideation. Being a TGGD, first generation, sexual minority student or SOC student was associated with reduced sense of belonging, as was attending a medium, large or public institution, one with a graduation rate less than 60%, or a school in the Northeast. Being an international student, living in campus housing and attending a very residential campus was associated with enhanced sense of belonging. Being TGGD, first generation, a sexual minority, or living in campus-housing was correlated with more suicidal ideation. Attending a small, public, low graduate rate, or Southern school was also correlated with more suicidal ideation. Being older than 23, an international student, and attending a large, residential school, or one located in the West was correlated with less suicidal ideation.

Table 4.2 Correlation Matrix of Predictors and Psychosocial Outcome Variables

<table>
<thead>
<tr>
<th></th>
<th>Sense of Belonging</th>
<th>Suicidal Ideation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGGD Policy Visibility</td>
<td>-0.01</td>
<td>-0.00</td>
</tr>
<tr>
<td>TGGD Policy Personal Awareness</td>
<td>0.12***</td>
<td>0.00</td>
</tr>
<tr>
<td>Student Life Policy Visibility</td>
<td>-0.01</td>
<td>-0.01</td>
</tr>
<tr>
<td>Student Life Policy Personal Awareness</td>
<td>0.11***</td>
<td>0.01</td>
</tr>
<tr>
<td>Leadership Policy Visibility</td>
<td>0.02**</td>
<td>-0.02*</td>
</tr>
<tr>
<td>Leadership Policy Personal Awareness</td>
<td>0.14***</td>
<td>-0.03***</td>
</tr>
<tr>
<td>TGGD</td>
<td>-0.06***</td>
<td>0.11***</td>
</tr>
<tr>
<td>23+</td>
<td>-0.00</td>
<td>-0.08***</td>
</tr>
<tr>
<td>First generation student</td>
<td>-0.06***</td>
<td>0.02**</td>
</tr>
<tr>
<td>Student of color</td>
<td>-0.06***</td>
<td>-0.00</td>
</tr>
<tr>
<td>Sexual Minority</td>
<td>-0.12***</td>
<td>0.17***</td>
</tr>
<tr>
<td>International Student</td>
<td>0.03***</td>
<td>-0.05***</td>
</tr>
<tr>
<td>Campus housing</td>
<td>0.03***</td>
<td>0.04***</td>
</tr>
<tr>
<td>Small</td>
<td>0.01</td>
<td>0.04***</td>
</tr>
<tr>
<td>Medium</td>
<td>-0.03***</td>
<td>0.01</td>
</tr>
<tr>
<td>Large</td>
<td>-0.04***</td>
<td>-0.03***</td>
</tr>
<tr>
<td>Public</td>
<td>-0.05***</td>
<td>0.04***</td>
</tr>
<tr>
<td>Grad &lt;60%</td>
<td>-0.03***</td>
<td>0.05***</td>
</tr>
<tr>
<td>Residential</td>
<td>0.03***</td>
<td>-0.03***</td>
</tr>
<tr>
<td>Northeast</td>
<td>-0.02***</td>
<td>0.01</td>
</tr>
<tr>
<td>Midwest</td>
<td>0.01</td>
<td>-0.01</td>
</tr>
<tr>
<td>South</td>
<td>0.00</td>
<td>0.04***</td>
</tr>
<tr>
<td>West</td>
<td>0.01</td>
<td>-0.04***</td>
</tr>
</tbody>
</table>
**Multivariable Results**

I next fit my multivariable, mixed effect regression models. **Figure 4.1** presents the adjusted estimated relationships between policy visibility and my outcomes of interest for TGGD and cisgender students personally aware of 0, 1, 2 or 3 of the policies. For TGGD students aware of all 3 policies, school visibility of the policies was significantly and positively correlated with sense of belonging ($\Delta = .15^* \text{ CI [.02, .28]}$). For all cisgender students, no matter their level of personal awareness, school visibility of TGGD-supportive policies was associated with reduced odds of belonging. Among TGGD students aware of 2 or more policies, school visibility of the policies was associated with reduced probability of suicidal ideation. For cisgender students, policy visibility was not associated with suicidal ideation.

**Figure 4.2** presents the adjusted estimated relationships between personal awareness of TGGD-supportive policies and my outcomes of interest for TGDD and cisgender students at schools with low, average, and high policy visibility. Personal awareness of these policies was associated with enhanced sense of belonging for TGGD students, but only at schools where more than one policy was visible across the student body (average or high policy visibility). For cisgender students, personal awareness was associated with enhanced sense of belonging at schools with low, average and high visibility. For TGGD students, personal awareness was associated with reduced suicidal ideation at schools with high policy visibility [OR=$0.85^* \text{ CI [.71, .99]}$]. For cisgender students at schools where there is little awareness of the policies, personal awareness was associated with a small increase in the probability of suicidal ideation [OR=$1.03^{**} \text{ CI [1.01, 1.05]}$].

Seeing that policy visibility was associated with both suicidal ideation and sense of belonging among cisgender and TGGD students, I next tested my second hypothesis that it would be associated with reduced disparities in psychosocial outcomes. As shown in **Figure 4.3** Panel A, visibility of TGGD-supportive policies was significantly associated with reduced TGGD-cisgender sense of belonging inequities. At schools where students were only aware of 1 policy, cisgender students scored .33 points (CI [.16, .50]) higher on sense of belonging than TGGD students. At schools with average policy visibility in my sample (where students were aware of 1.25 policies), cisgender students scored .22 points higher (CI [.10, .34]) on sense of belonging than TGGD students. At schools with high visibility, where students were aware, on
average, of 1.5 of the 3 policies, sense of belonging inequities were eliminated (.11 CI [-.04, .26]).

**Figure 4.1 Association Between Policy Visibility, Sense of Belonging and Suicidal Ideation for TGGD and Cisgender Students Personally Aware of 0, 1, 2 or 3 of the Policies**

Notes. Solid shapes depict significant relationships (p<.05) and hollow shapes reflect insignificant relationships. Visibility variable is scaled by ten to ease interpretation.
Figure 4.2 Association Between Personal Awareness, Sense of Belonging and Suicidal Ideation for TGGD and Cisgender Students at Schools with Low, Average, and High Visibility

Notes. Solid shapes depict significant relationships (p<.05) and hollow shapes reflect insignificant relationships. Policy visibility reflects the average number of policies students are aware of at the institution. Low visibility is schools where students are on average aware of 1 policy. Average visibility reflects schools at the mean visibility level, where students are on average aware of 1.25 policies. High visibility reflects schools where students are on average aware of 1.5 policies. Personal awareness variable is scaled by ten to ease interpretation.
Figure 4.3 Sense of Belonging and Suicidal Ideation Inequities as Policy Visibility Increases

As shown in Figure 4.3 Panel B, visibility of TGGD-supportive policies was also significantly associated with reduced TGGD-cisgender inequities in suicidal ideation. At schools with low policy visibility, 18.5% (CI [.14, .23]) more TGGD students experienced suicidal ideation compared to cisgender students. At schools with average policy visibility in my sample, 11.1% (CI [.06, .16]) more TGGD students experienced suicidal ideation compared to cisgender students. Suicidal ideation inequities were eliminated (.05 CI [-.02, .12]) at schools with high policy visibility (where 1.5 policies were visible).

Discussion

Using a multi-institution sample, I investigated the relationship between visibility and awareness of school policies valued by TGGD students and psychosocial outcomes and inequities among TGGD and cisgender college students. Multivariable results reveal that personal awareness and visibility of policies valued by TGGD students at colleges and universities correlate with TGGD and cisgender students’ suicidal ideation and sense of
belonging and enhanced visibility is associated with reduced disparities in psychosocial outcomes between TGGD and cisgender students.

This research makes several valuable contributions to the empirical literature. The study importantly shifts attention from documenting the marginalization and mistreatment faced by TGGD students, which has characterized much existing research, to examining supportive, inclusive policies employed by schools and the role of these institutional actions in shaping inequities (Pitcher et al., 2018). I extend past research by examining policies employed at colleges and universities. I add to the research literature by demonstrating that suicidal ideation and sense of belonging inequities vary across institutions of higher education and showing that they do so in association with the visibility of supportive school policies. Research examining the role of policy and structural factors in shaping outcomes has rarely included both cisgender and TGGD individuals so understanding impacts on inequities is novel and adds to existing science. Controlling for awareness and visibility of other school policies to enhance inclusion allowed me to identify the unique relationship between TGGD-supportive policies and psychosocial inequities. Not adjusting for these potential confounders is a noted limitation of past research (Woodford et al., 2018).

My findings help to advance the field by highlighting the importance of the visibility of supportive school policies, an unmeasured construct at colleges and universities. Finding that school visibility of policies matters for TGGD student suicidal ideation is consistent with existing theory and past research that emphasizes the role of social context in shaping thoughts of suicide among TGGD young people (Clements-Nolle, Marx, Katz, et al., 2006; Hendricks & Testa, 2012; Johns et al., 2019; Seelman, 2016; Turban et al., 2020). Based on qualitative research, school policies have been hypothesized to impact student outcomes by serving as a specific source of support but also by conveying the institution’s values and shaping the climate (Pitcher et al., 2018). Finding an interaction between personal awareness and visibility of supportive policies in shaping suicidal ideation and belonging among TGGD students may suggest that supportive school policies are signaling supportive institutional values and fostering an inclusive climate for TGGD students. Higher education institutions each develop their own unique normative climates and cultures (Katz & Kahn, 1978; Kezar, 2001, 2013) and policies are one way that schools communicate and enforce the norms and values that they hold (Pitcher et al., 2018). Visible inclusion practices may make some students feel supported “regardless of
their personal need to call on the policy for protection” (Pitcher et al., 2018), as has been found in qualitative research, and benefit their psychosocial wellbeing directly. Visible pronoun identifiers, inclusive restrooms, and inclusive non-discrimination policies may also indirectly influence psychosocial outcomes by shaping student behaviors, discouraging discrimination, and ensuring consequences for those who “knowingly perpetrate such behavior” (Hall, 2017 from Woodford 2018; also emphasized by a student in Pitcher et al. 2018). In other words, visibility may create a campus culture that is intolerant of anti-TGGD bias.

Documenting the interacting effects of person-level and student-body awareness of supportive policies on college campuses also adds to the literature in other ways. Identifying a positive association between personal awareness of supportive school policies and sense of belonging among TGGD students is consistent with findings from Goldberg and colleagues (2018) who found a link between personal awareness of supportive school policies and sense of belonging among TGGD college students, but my work adds nuance by suggesting that the effect of personal awareness is context dependent. My research suggests the importance of measuring awareness and visibility in future work assessing the role of school policies in other contexts in shaping psychosocial outcomes and inequities.

Future research is also needed to better understand what drives personal awareness and visibility of inclusive institutional policies. What leads some students to become aware of the practices? Does positive promotion of policies, strict enforcement, or public incidents of bias or mistreatment render inclusion policies visible to the student body? I found a positive correlation between personal awareness of TGGD-supportive policies and cisgender student suicidal ideation at schools with low visibility. Rather than personal awareness leading to suicidal ideation at schools with low visibility while it enhances belonging at all school visibility levels, it may be that cisgender students aware of the nondiscrimination policy, bathroom options and pronoun-indication options at schools where they are not visible, are questioning their gender identity. Research shows that young people questioning their gender identity are at greater risk for suicidal ideation (Guz et al., 2021). Alternatively, something else—a confounder—could account for this association at low visibility schools.

**Limitations**

This research makes several important contributions, but it is not without limitations. Analyses do not include an objective measure of policy presence. Personal and student-body
awareness of school policies exist independently of objective policy presence and are, therefore, important to measure. However, without controlling for objective policy presence, it is not clear to what degree policy visibility reflects policy presence versus effective promotion. While there is not an objective measure of every policy examined in my study (e.g., there is no objective measure of the presence/absence of gender inclusive bathroom options at institutions), I ran a sensitivity analysis controlling for one objective measure of policy presence in each scale (the presence of an inclusive nondiscrimination policy, LGBTQ center, and Chief Diversity Officer) in my models and the results remained the same. This study also lacked measures of state policy context. States vary significantly in their level of protection for TGGD people (Goldenberg et al., 2020b). I controlled for school location at a region level (North, South, East, West) but future research should examine whether the impact of inclusive campus policies varies based on the state policy context.

Having representative data from 28 different schools is a significant strength of this research given that most existing work with TGGD students has been done almost exclusively with convenience samples at single institutions or with just one student from each school (Pitcher et al., 2018; Renn, 2010). However, not having a random sample of schools is a limitation. I include schools representing many different sizes, types, and characteristics, making the findings generalizable to many different types of schools but schools that elect to participate in Healthy Minds could differ from schools that do not. The low student response rate is also a limitation. I used survey weights to help adjust for differences between responders and nonresponders but could only adjust for characteristics tracked by the institution (e.g., institutional data was not available to make the estimates representative of first-generation students). The small number (though representative proportion) of transgender and gender diverse students in the sample precluded examining differences within the TGGD population (e.g. between trans men, women, and nonbinary students) and looking at differences by race and ethnicity, which is important for future work (Lett, Dowshen, & Baker, 2020; Sutter & Perrin, 2016). Overall, however, including many diverse institutions of higher education located in every region of the country and large, representative samples from each school enabled me to use hierarchical modeling and survey weights to understand variation within and between institutions, and to produce findings that are generalizable to many schools and colleges across the country.
The cross-sectional nature of my analyses limits causal conclusions. Future causal research is needed to shed light on whether school actions drive down inequities or whether TGGD students with higher sense of belonging and fewer thoughts of suicide navigate to schools with more visible supportive policies. Finding that visibility is linked to reduced inequities in belonging, a factor so tied to students’ experiences at the school, may lend support to the idea that school actions can make a difference. Regardless of whether visible supportive policies attract TGGD students who are well psychosocially or act to improve psychosocial outcomes for these students, the relationship between visibility and reduced inequities suggests that it is in the best interest of higher education leaders and policy makers to not just adopt supportive school policies but promote them broadly across the student body. Ideally, future research will include schools with a wider range of policy visibility—schools where no students are aware of any supportive policies for TGGD students and those where most students are aware of all three. Having schools representing limited policy visibility range may have reduced the magnitude of my results.

**Conclusion**

This study shows that highly visible school inclusive nondiscrimination policies, gender inclusive restrooms, and pronoun options are associated with reduced psychosocial inequities for TGGD college students, and that awareness of such policies has some benefits for cisgender students as well. My findings lend support for the assertion that TGGD-supportive school policies hold promise for the twin goals of improving health at the population level and reducing inequities (Hatzenbuehler, Keyes and Hasin, 2009) through contributing to reducing TGGD-cisgender psychosocial inequities and improving psychosocial outcomes among both TGGD and cisgender students at colleges and universities.

Existing research has shown that protective policies outside of postsecondary settings shape the health of TGGD people (Du Bois et al., 2018; Goldenberg et al., 2020b; Goldenberg, Reisner, Harper, Gamarel, & Stephenson, 2020a; Hasenbush, 2019; Kull et al., 2016; McDowell, Raifman, Progovac, & Rose, 2020). My research suggests school-level inclusion policies in higher education are also important. Inclusive nondiscrimination policies, gender inclusive restrooms, and name/pronoun identification options matter for sense of belonging and college students’ thoughts of suicide, as does their visibility across the student body. While cross-sectional analyses limit causal claims, my findings are consistent with previous research.
suggesting that supportive actions and efforts by schools are important for psychosocial outcomes among TGGD students (Heck et al., 2011; Mcguire, Anderson, Toomey, & Russell, 2010; Russell & Toomey, 2013; Toomey et al., 2012; Weinhardt et al., 2017). If there are institutional policies that can improve psychosocial outcomes at institutions of higher education, with particular impact on TGGD students who experience a greater burden of concerns (Chen et al., 2019; Lipson et al., 2018; Lipson, Raifman, et al., 2019), this will provide more powerful and cost-effective prevention approaches than funding continuously rising costs of providing traditional mental health services, which are currently failing to keep up with escalating service demands (Lipson, Lattie, et al., 2019; National Academies of Sciences Engineering & Medicine, 2021). Given the link between sense of belonging and academic outcomes and between suicidal ideation and suicide, making TGGD-inclusion practices known and visible may be an important way to make institutions of higher education more equitable and save lives.
CHAPTER 5: Conclusions and Implications

Mental health is a neglected public health crisis globally (Auerbach et al., 2016; Kohn, Saxena, Levav, & Saraceno, 2004; Murthy et al., 2001; Office of the Surgeon General, 2021b; World Health Organization, 2002). At U.S. colleges and universities, student mental health problems have escalated steadily for over a decade and now exceed the current capacity of institutions to respond (Center for Collegiate Mental Health, 2020; Duffy et al., 2019; Lipson, Lattie, et al., 2019). The prevalence of concerns and entrenched inequities have left schools looking for solutions and opportunities to prevent problems, improve mental health, and enhance mental health equity (Eisenberg, 2019).

In this dissertation, I provided a comprehensive, multidisciplinary review of the existing evidence-base for intervening to address college student mental health. Study 1 (Chapter 2) identified, reviewed, and organized institutional opportunities for intervention at every level of the socioecological model (Bronfenbrenner, 1979; McLeroy et al., 1988). In doing so, it identified strengths, weaknesses, and gaps in the research literature to date. Overall, I found that research has primarily focused on individual-level interventions and secondarily on interpersonal and community-level interventions.

Far less work has examined opportunities for institutional-level interventions or how school policies and practices shape student mental health outcomes. In the second part of this dissertation, I advanced research on two arenas of institutional practice—policing and transgender and gender diverse (TGGD)-inclusive policies—and demonstrated their relevance for enhancing mental health equity. The work involved developing two new quantitative surveys and surveying nearly 21,000 students at 28 institutions of higher education. Study 2 (Chapter 3) provided the first, representative exploration of college student police encounters, examining experiences, attitudes, concerns, and policy perspectives at a large, public institution in the Midwest. It looked at how institutional policing investments and practices impact students, with a rare focus on the intersection of race and gender, looking specifically at White, Asian, and underrepresented racial minority (URM) cisgender male, female, and TGGD students to identify
significant differences in student experiences and perspectives across groups. Study 3 (Chapter 4) provided novel data on the impact of school inclusion policies for supporting TGGD students. With data from 28 institutions, I demonstrated that students’ personal awareness of these policies, as well as their visibility at the institution, was associated with sense of belonging, suicidality, and the gap in these outcomes between TGGD and cisgender students.

This dissertation moves the field of student mental health—both in terms of science and practice—beyond focusing on documenting the problem and focusing on individual students to address it. It identifies opportunities for institutions to become more mental health- and mental health equity-promoting environments. It also suggests the need for a more evidence-informed, policy-focused, equity-minded approach to college student mental health. In the sections that follow, I will summarize major findings from all three studies and then discuss public health implications and next steps for research, policy, and practice.

Dissertation Summary

Study 1 (Chapter 2)

My multi-level review of interventions revealed that colleges and universities have evidence-based opportunities to enhance student mental health at every level of the socioecological model to enhance student mental health. This model, introduced in Chapters 1 and 2, emphasizes how individual, interpersonal, community and institutional factors, and the enabling environment interact to influence health and wellbeing (Bronfenbrenner, 1979; McLeroy, Bibeau, Steckler, & Glanz, 1988). I identified a robust, strong, and growing evidence-base for individual prevention and intervention programs (Buchanan, 2012; Cimini & Rivero, 2018a; Conley, Durlak, & Kirsch, 2015; Conley, Durlak, Shapiro, Kirsch, & Zahniser, 2016; Reavley & Jorm, 2010; Regehr, Glancy, & Pitts, 2013; Rith-Najarian, Boustani, & Chorpita, 2019; Shiralkar, Harris, Eddins-Folensbee, & Coverdale, 2013; Yager & O’Dea, 2008). Evidence is overwhelming that commonly used approaches like psychoeducation (targeting students’ mental health knowledge, attitudes, coping, and help-seeking behaviors) are not very effective (Conley, Durlak, & Dickson, 2013; Conley et al., 2015, 2016; Corrigan, Morris, Michaels, Rafacz, & Rüschi, 2012; Durlak, 1997; Stice, Shaw, & Marti, 2007; Yager & O’Dea, 2008; Yamaguchi et al., 2013). However, here is strong evidence that interventions with supervised skill-practice are highly effective at promoting mental health and preventing and reducing mental health problems (Conley, 2015; Conley et al., 2015). Supervised skill-practice programs have
demonstrated positive effects on depression, anxiety, stress, distress, socio-emotional skills, and academic outcomes, at least with samples comprised predominantly of White women at four-year institutions (Conley, 2015; Conley et al., 2015). Within this intervention category, mindfulness programs are the most effective, while cognitive behavioral and relaxation interventions show promise, and meditation programs have minimal evidence for effectiveness (Conley, 2015; Conley et al., 2015; Regehr et al., 2013). Further research is needed to confirm the effectiveness of supervised skill-based interventions over the long-term in diverse settings and with diverse populations. However, given research demonstrating that these programs may be as effective as clinical treatment, colleges and universities should focus on where and how they can be adopted and scaled (Conley, 2015; Conley et al., 2015, 2017). Coaching interventions and identity-support interventions, which also target individual-level factors, warrant further research.

Despite substantial evidence indicating multiple important avenues for interpersonal interventions to enhance student mental health and evidence of their effectiveness outside of higher education, I found that few formal interventions have been designed for and robustly evaluated with college students. Two exceptions, involving group peer programs (one focused on social support in the transition to college and another focused on eating disorder prevention), were well evaluated and shown to be effective across a range of racial/ethnic groups (Becker et al., 2005; Halliwell & Diedrichs, 2014; Lamothe et al., 1995; Mattanah et al., 2010, 2012; Matusek et al., 2004; Mitchell et al., 2007; Pratt et al., 2000; Stice et al., 2014, 2006). There is also growing attention to and evidence for the effectiveness of belonging interventions (Binning et al., 2020; Brady et al., 2020; Gilken & Johnson, 2019; Layous et al., 2017; Marksteiner et al., 2019; Stephens et al., 2014; Walton et al., 2015; Winkelmes et al., 2016). Overall, far more research should be dedicated to investigating the potential for peer, family, faculty, staff, belonging, and interpersonal harm reduction interventions to play a role in promoting mental health and reducing mental health inequities at schools. For instance, peer programs may help support students of color (SOC) and international students who are less likely to access clinical services (Dubovi & Sawyer, 2018). Interventions connecting college students from traditionally underrepresented backgrounds with mentors may reduce psychological distress and depressive symptoms in these students (Hurd et al., 2018, 2016; Le et al., 2021). Likewise, interventions that reduce discrimination and microaggressions faced by TGGD students, which lead to
psychological distress and mental health symptoms, may enhance mental health equity across gender (Matsuno, 2019; McDowell et al., 2020; National Academies of Sciences, Engineering, 2020).

Community-level interventions (e.g., gatekeeper trainings, screening interventions, school-wide programs combining these and other approaches, postvention following suicide, and learning environment interventions) have received evaluation attention with mixed results. However, methodological weaknesses (e.g., measuring outcomes only at the individual-level and at pre- and post-intervention without adequate control comparisons) have hindered full understanding of their potential. For example, gatekeeper trainings have largely been assessed only via trainee knowledge and skills (pre-to-post), whereas the impact on campus mental health of institution-wide training to recognize and respond to early signs of student distress might be more important (Lipson, 2014; Lipson et al., 2014). Moreover, curricular and pedagogical shifts to focus on mental health promotion and stressor reduction have begun to show promise; however, current outcomes are largely based on individual class participant data through pre-to-post assessment (Bowman, 2010a; Hood et al., 2021; Riley & Mcwilliams, 2007; Wasson et al., 2016). Schools could implement and broadly evaluate interventions at scale institutionally, or across departments or residence halls, with a focus on shifting culture and norms to better support student mental health. More research is needed to understand and guide such efforts and their impacts in higher education, but this approach has been effective in other settings (Ahern et al., 2018; Aseltine & DeMartino, 2004; Ciffone, 2007; King, Strunk, & Sorter, 2011; Schilling, Lawless, Buchanan, & Aseltine, 2014; Wasserman et al., 2015; Wyman et al., 2010).

My review similarly revealed a lack of focus on institutional-level interventions. Despite strong evidence from outside of higher education for broad approaches, such as environmental changes to restrict means for suicide or policy changes to promote mental health (Beautrais, 2001; Cantor & Hill, 1990; Jed Foundation, 2019; Raifman et al., 2018; Reisch & Michel, 2005), I identified few studies evaluating the impact of built environment interventions, college and university policies, or institutional practices on student mental health and wellbeing. However, I documented strong theoretical and empirical research indicating many pathways through which all are likely shaping student mental health. Evidence of the importance and value of structural approaches to health promotion and organizational change in higher education, as well as calls for upstream, environmental strategies in national mental health reports suggest this is an arena
in urgent need of research (Kezar, 2019; National Academies of Sciences Engineering & Medicine, 2021; Office of the Surgeon General, 2021b). Institutional factors and their impact on mental health were the foci of my empirical studies (Studies 2+3, Chapters 3+4).

After reviewing individual, interpersonal, community, and institutional interventions to enhance student mental health, I then examined the enabling environment and its ability to respond to and support students. For example, federal, state, and local policies influence student health behaviors and help-seeking, shape colleges’ and universities’ financial ability to invest in mental health promotion and intervention, and advance or restrict equal rights and inclusion with implications for student mental health and wellbeing (Corrigan et al., 2004; Garraza et al., 2015; McDowell et al., 2020; Organ et al., 2016; Walrath et al., 2015). Higher education institutions have a tremendous opportunity, at a critical developmental stage when many mental health disorders are first emerging, to prevent the onset and evolution of mental health disorders, reduce the 10-year span it typically takes to receive treatment, and close treatment gaps (Kessler, Berglund, et al., 2005; Lipson, Lattie, et al., 2019; Wang et al., 2002). This is not the burden of higher education alone; much can be done to prepare and equip schools to respond more effectively. Federal, state, and local policy makers, as well as private funders and companies, all have a role to play in: 1) generating funds to support college student mental health and 2) advancing health-promoting policies that protect student mental health and that support investment in student mental health by colleges.

**Study 2 (Chapter 3)**

Study 2 (Chapter 3) examined one area of institutional practice that impacts student college experiences and wellbeing but has received almost no attention in mental health research or practice guidelines. Campus police are increasingly ubiquitous in higher education and they are regularly the first or primary responders to students in mental health distress (Kase et al., 2016; Lanser et al., 2021; Margolis & Shtull, 2012; Reaves, 2015). Yet, no representative research has been conducted to understand the prevalence of student encounters with police or the nature of these interactions (Jenkins et al., 2020; Lanser et al., 2021). I, therefore, conducted a large, representative survey at a large Midwestern university to investigate how policing shapes student experiences and to shed light on student views on campus police presence and policy. The research was purely descriptive but added to the existing literature by producing representative prevalence rates from a diverse sample of students with a range of racial/ethnic
and gender identities, taking an intersectional approach, and capturing student perspectives on institutional public safety policy. Overall, half of the participants reported encounters with police (any kind) while a student. Of these students, 15% had negative interactions and 24% experienced unfair treatment. This varied across groups such that between 32 and 56% of TGGD students of every racial group reported negative interactions and unfair treatment. This is concerning given growing evidence that negative and unfair police interactions increase depressive symptoms, suicidal ideation, and drug use (Dennison & Finkeldey, 2021; Turney, 2020). Attitudes about police presence were mixed. Most students agreed that a police presence on campus makes them feel safe, but few (37%) felt armed campus police presence was good for their mental health, and most (73%) felt uncomfortable with police responding to them in a mental health crisis. Almost 60% of students indicated one or more problems with campus police and support for police-related policy changes was widespread. For example, 85% of students expressed support for increased training, 70% for redirecting funds from policing to invest in community resources (e.g., counseling services, multicultural student affairs/services, etc.), 52% for disarming officers on campus, and 40% for abolition.

This study revealed significant differences across race and gender with general trends suggesting that underrepresented racial minorities and TGGD students reported more police contact, more negative and unfair treatment by police, and negative impacts on academics. These students were less likely to feel campus police presence makes them feel safe and was good for their mental health and more likely to be uncomfortable with police responding in mental health crises. They endorsed more concerns as problems and greater support for policy change. The data support more study of the impact of policing on college students’ mental health and evaluation of whether shifts in campus public safety investments and practices, which are well supported by students, are avenues for enhancing mental health equity, especially for underrepresented racial minorities and TGGD students. My data show that police interaction is common but felt to be negative and unfair to many students and of great concern, providing initial representative evidence from one institution that it has perhaps been an oversight to neglect this area of institutional practice and policy when looking for avenues for promoting student mental health and preventing mental health problems. Future research is needed to confirm these patterns across different types of institutions. However, the near ubiquitous discomfort with police response to mental health crises among students most likely to experience
such crises and the high level of support across the student body for alternative responses suggest the need for institutions to reconsider how they respond at this vulnerable moment.

**Study 3 (Chapter 4)**

Like Study 2, Study 3 (Chapter 4) advanced understanding of an understudied population facing some of the most significant mental health inequities in higher education: TGGD students (Lipson, Raifman, et al., 2019; Oswalt & Lederer, 2017). Study 3, however, investigated an area of institutional policy that has received more empirical attention in higher education and K-12 settings: policies to support the inclusion of TGGD students (Day, Ioverno, & Russell, 2019; Goldberg et al., 2018; Kull et al., 2016; Pitcher et al., 2018; Sausa, 2005; Seelman, 2014b; Toomey et al., 2012; Woodford et al., 2017). Thus, this research probed more deeply into how personal awareness of such policies interacts with their visibility to shape psychosocial inequities between TGGD and cisgender students. With representative survey data I collected from 15,579 students at 28 colleges and universities, I examined personal awareness and visibility of inclusive nondiscrimination policies, gender inclusive restrooms, and pronoun options, and examined their correlations with sense of belonging and suicidality. Multivariable results revealed higher visibility of inclusive nondiscrimination policies, gender inclusive restrooms, and pronoun options is associated with reduced psychosocial inequities for TGGD college students. Awareness of such policies also has benefits for cisgender students. My findings advance the field by highlighting the importance of visible supportive school policies, an unmeasured construct at colleges and universities.

**Public Health Implications**

Findings from this dissertation have many implications for realizing a more 1) evidence-informed, 2) policy-focused, 3) equity-minded approach to college student mental health. In the remaining sections, I will discuss implications and next steps for achieving each of these three aims. The work suggests that bridging research and practice is key to a more evidence-informed approach and illuminates several avenues for closing the research-practice gap. In support of this goal, I will integrate research and practice implications in this chapter. The dissertation also identifies that a more policy-focused approach will emerge from addressing neglected levels and interactions across the socioecological model. Finally, it indicates that a more equity-minded approach requires specifically focusing on populations facing inequities and reducing the inequities they face.
An Evidence-Informed Approach: Bridge Research and Practice

My review of the intervention literature revealed a significant set of effective, well-evaluated public health interventions for promoting mental health and preventing mental health problems in college students. However, in practice, interventions with weaker evaluations and less evidence of effectiveness (e.g., gatekeeper training, psychoeducation) have often received the greatest uptake. Indeed, there has been little implementation and scaling of interventions with the strongest evidence (e.g., mindfulness interventions with supervised skill practice).

Simultaneously, my work on policing shows that institutions of higher education are making large and growing investments in campus law enforcement as well as instating task forces to assess and revise college public safety practices. However, they are doing so without representative data or comprehensive understanding of student experiences and perspectives and little empirical evidence on how these institutional investments and practices shape student outcomes. Several strategies may foster a more evidence-informed approach to student mental health by bridging research and practice in higher education. Informed by the process of completing this dissertation, I suggest efforts to: 1) organize the evidence-base and make it accessible to higher education practitioners, policy makers, administrators, students, and other stakeholders; 2) strengthen the evidence-base by more closely aligning it with institutional goals and priorities and by making it more responsive to the evolving needs voiced by students; and 3) consider and study implementation contexts and practices.

Make The Evidence-Base Clearer and More Accessible. Several findings from my intervention literature review indicate a need to give college decision-makers easier access to a better organized evidence base. Study 1 (Chapter 2) showed that the rapidly expanding set of intervention evaluations relevant to addressing student mental health are dispersed across a wide range of fields and journals. There is inconsistency in what outcomes are targeted and how they are measured. For example, numerous interventions focus on addressing stigma, but the extent to which stigma shapes the most important outcomes of help-seeking, symptom levels, and positive mental health for those with diagnoses is contested or unknown with college students (Eisenberg, Downs, et al., 2009; Golberstein et al., 2009; Gulliver et al., 2012; Han et al., 2006). Many interventions target mental health symptoms, psychological distress, and psychosocial wellbeing, but there is significant variation in how these outcomes are assessed. In addition, there is a lack of standard terminology and shared understanding of concepts. For example, what
constitutes peer support or mentoring, and the terms used to describe these types of programs, varies widely. Beyond inconsistency in measurement, outcomes, and terminology, there is variation in study designs, a lack of longer-term outcome measurement, and poor reporting of study samples. These factors make it challenging to identify and access the evidence-base and compare findings across evaluations.

Creating a best-practices registry might be one solution for addressing these issues. A registry of interventions to improve college student mental health could be informed by existing registries. First, Blueprints for Healthy Youth Development (www.blueprintsprograms.org), which reviews a wide range of social, educational, and health-related programs for children, adolescents, and young adults. Second, CollegeAIM, which rates alcohol interventions (programs and policies) in postsecondary settings in terms of evidence of effectiveness and cost of implementation. CollegeAIM is sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and was created by a panel of research experts. The registry differentiates between individual-level and environment-level strategies and includes over 60 interventions.

A registry could help drive more consistency in outcome measurement and shared understanding of terminology. It could set standards for levels of evidence, motivating use of methodologically strong research designs. It could require reporting sample characteristics and recommend longer-term outcome measurement. Given how rapidly interventions are being developed and tested, it would take considerable staffing and investment to create and maintain a registry, but such a tool would contribute significantly to organizing the evidence-base and making it accessible to higher education stakeholders. Interventions that are universally appropriate across or within schools are unlikely due to significant variation in institutional and student body characteristics. Therefore, ideally, experts would be available to help college and university administrators, leaders, policy makers, and practitioners interpret and understand which interventions from the registry would be most appropriate for their students and setting.

**Generate Evidence Aligned with Institutional Goals and Priorities.** In addition to strategies to enhance use of the existing evidence-base, increasing the supply of high-quality studies focused on outcomes of greatest interest to colleges, universities, and students could help bridge research and practice in higher education. For example, institutions of higher education are primarily dedicated to student academic outcomes. Some even debate higher educations’ role in and responsibility for addressing student mental health (National Academies of Sciences
However, there is evidence that student mental health shapes academic outcomes of interest to colleges and universities—graduation and retention rates, enrollment discontinuity, academic success, career trajectories, and more (Arria et al., 2013; Billingsley & Hurd, 2019; Bruffaerts et al., 2018; De Luca et al., 2016; Eisenberg, Golberstein, et al., 2009). Research demonstrating the cost-effectiveness of mental health interventions and joint benefits to student mental health and academic outcomes would be of interest to higher education stakeholders and likely facilitate investment in these interventions. Demonstrating the effectiveness of prevention programs is a consistent challenge in public health, particularly when the benefits may be realized long-term, as is the case with student mental health, but there are some programs, such as belonging interventions, which are beginning to show benefits for mental health and academic outcomes in the short- and long-term (Brady et al., 2020; Marksteiner et al., 2019; O’Connell et al., 2009; Stephens et al., 2014; Walton & Cohen, 2011). Demonstrating the cost-effectiveness of such interventions through robust measurement of both outcomes could facilitate their adoption in higher education.

**Generate Evidence Responsive to Student Concerns and Needs.** Expanding the evidence-base to align more closely with student concerns, priorities, and needs could also enhance the use of research in practice. We are amid a tumultuous period in global and U.S. history. With the COVID-19 pandemic, recent political unrest, and other societal issues, the challenges facing today’s college students and taxing their mental health are rapidly evolving (National Academies of Sciences Engineering & Medicine, 2021; Office of the Surgeon General, 2021b). Researchers must move quickly and efficiently to address the issues most relevant to students’ lives. Evidence suggests that student advocacy is a powerful driver of change in higher education (Cole & Heinecke, 2020; Davis, Harris, Stokes, & Harper, 2019; Goldberg et al., 2020; Wheatle & Commodore, 2019). Institutions face tremendous pressure to shift practice in response to student demands. Timely, relevant research that is based upon students’ stated priorities would enhance the use of evidence as colleges and universities consider policy and institutional change. Indeed, a strength of this dissertation is its timely response to student concerns and policies that are currently being debated in higher education. In qualitative research, Black college students have clearly, strongly, and repeatedly voiced concerns that “encounters with campus police produce injury (albeit not physical) and rouse an unhealthy sense of racial battle fatigue facilitated by officers’ unfounded questioning, presumptions of
guilt, and embodiments of whiteness” (Jenkins et al., 2020, p. 2; Smith, Allen, & Danley, 2007). Likewise, TGGD students have voiced the need for and value of inclusive nondiscrimination policies, gender inclusive restrooms, and pronoun options (Goldberg et al., 2018). Black students, TGGD students, and others have advocated for change within their institutions, and schools have responded (Goldberg et al., 2020; Wheatle & Commodore, 2019). Yet, there is sparse quantitative research on these topics to guide practice. Through my dissertation, I mobilized quickly to address topics that are voiced by students as important and are currently under revision in institutional practice.

Studies 2 and 3 in this dissertation demonstrated that strong population survey research in higher education, which assesses and adapts to cover new priority topics efficiently, can aid in generating timely research that is responsive to student concerns. Study 2 (Chapter 3) illustrated the value of ongoing survey research within one institution, such that the survey instrument and researchers garner respect and trust from institutional leaders. This type of survey infrastructure and trust by top institutional leaders facilitated the timely distribution of the Study 2 survey instrument to the majority of the student body. Study 3 (Chapter 4) illustrated the value of population survey research that is consistent across multiple institutions. Being able to rapidly obtain representative data from enough schools allowed for investigating the impact of a school-level variable, TGGD-inclusion policy visibility, currently of interest to students (Goldberg et al., 2018). Researchers and funders should invest in representative, multi-institution surveys, take steps to share the data in ways that motivate institutional participation, and adapt surveys over time to address issues of greatest concern to students. Institutions should enroll students in studies consistently over time not only to understand their own students’ current needs but also to enable research that illuminates the impact of currently debated institutional policies.

**Study and Consider Implementation Context and Practice.** This dissertation also suggests the value of studying and considering the implementation of mental health interventions in higher education. My literature review revealed a strong focus on intervention effectiveness but minimal formal study of implementation and its barriers and facilitators (Cimini & Rivero, 2018; Conley et al., 2015, 2016; Lattie et al., 2019; McQuillin et al., 2020; Rith-Najarian et al., 2019). The few studies to consider implementation identified considerable barriers and challenges in the higher education setting (Rash, 2008). Public health impact comes from intervention reach—the number of people who participate or are exposed to the intervention—
multiplied by the per-person effectiveness among those who are reached. Achieving a wide reach is regularly a challenge that colleges need to solve. For example, many digital health programs have demonstrated good efficacy in trials with motivated or compensated participants, but it is difficult to reach large numbers of people with these programs in real settings (Lattie et al., 2019). Furthermore, at the intersection of reach and effectiveness is engagement, which can be thought of as the quantity and quality of participation or exposure to an intervention. To truly improve student mental health, colleges and universities not only need effective interventions, but ones that will engage students (Conley et al., 2017). Research and evaluation on student mental health must pay more attention to understanding and improving how to reach and engage students at a large scale, with attention to the diversity of student characteristics and institution types.

My dissertation also identifies other aspects of implementation as relevant to shaping student outcomes. For example, Study 3 (Chapter 4) suggests that the degree to which students are aware of policies (individually and across the student body), perhaps a result of how they are promoted to students, shapes the policies’ impact on student outcomes. Greater understanding of how implementation shapes intervention impact will improve the adoption of interventions in practice. Likewise, improved understanding of implementation context will help researchers design and evaluate interventions that can be practically and effectively adopted in the higher education setting.

_A Policy-Focused Approach: Address Neglected Levels and Interactions Across the Socioecological Model_

Another overarching theme of this dissertation research is that there are opportunities to intervene across every level of the socioecological model in higher education to promote student mental health. My research suggests that institutions of higher education can, should, and do influence student mental health by shaping individual, interpersonal, community, institutional and policy factors. For example, Study 2 (Chapter 3) explored how institutional investments in the size, scope, and armament of campus police forces may shape the frequency and quality of student interactions with the police, potentially resulting in mental health distress, especially for SOC and TGGD students. Study 3 (Chapter 4) discussed and shed further light on how TGGD-specific institutional policies may shape community norms and awareness that influence levels of interpersonal discrimination, bullying, harassment, and misgendering, which ultimately impact
mental health outcomes such as suicidal ideation and sense of belonging. And yet, the dissertation also points out the need for further research and practice to fully understand and harness schools’ intervention opportunities at, and across, each level. Public health research indicates that a multilevel intervention is the most effective for improving population health (National Academies of Sciences, Engineering, 2020; Sallis et al., 2008). Higher education presents a remarkable opportunity to strategically intervene in a coordinated manner across all levels to shape student lives. However, in reviewing my dissertation one may conclude: few multi-level interventions have been developed or tested; there is disproportionate focus on micro-levels of intervention and neglect of institutional-level interventions; levels of measurement in evaluations need to be clarified and strengthened; and interactions across levels of influence warrant further study. Progress in these arenas will facilitate a more policy-focused approach to student mental health.

Studies 1-3 (Chapters 2-4) all illustrate the extent to which research and practice in higher education has predominantly focused on individual-level interventions for student mental health and neglected to fully consider, develop, or evaluate institutional interventions. This pattern parallels trends outside of higher education where mental health prevention and intervention has focused on educating, training, and supporting individuals to impact their knowledge, attitudes, symptoms, coping, and help-seeking (O'Connell et al., 2009). In national reports, federal funders, scientists, and others are calling for greater attention to upstream, structural, and environmental interventions (Eccles & Roeser, 2011; National Academies of Sciences Engineering & Medicine, 2021; Office of the Surgeon General, 2021b; Palmer et al., 2019). Focus on individual-level intervention over institutional intervention likely also stems from the challenges of designing and rigorously evaluating institutional interventions. Because the unit of analysis is a large segment of a college community or even an entire college population in many cases, an adequately powered trial requires many colleges or at least many units within individual campuses. A simple pre-post analysis of outcomes for one campus is unlikely to be credible unless the changes in outcomes are large and specific to the intervention targets. Given these challenges, a concerted effort by researchers and colleges is needed along with investment by funders to conduct large-scale evaluations that include adequate control groups. Where RCTs are not feasible, quasi-experimental designs such as difference-in-difference studies may help shed light on the impact of institutional policies and practices (Dimick & Ryan, 2014; Goodman-Bacon et al., 2018;
The feasibility of such designs is enhanced by the presence of population-survey studies such as the American College Health Association National College Health Assessment and the Healthy Minds Study. Ideally, however, more institutions will participate repeatedly over time in these assessments. Such investments and efforts on the part of colleges, researchers, and funders is critical for a more evidence-informed, policy-focused approach to student mental health.

In addition to investigating institutional-level interventions, there is an opportunity to strengthen evaluations by measuring outcomes at the various possible levels of intervention impact. For example, my review of the intervention literature revealed that even interventions designed for community-level impact are often only assessed by measuring individual outcomes (Lipson, 2014). Gatekeeper programs have the potential to shift community norms around outcomes including recognizing and responding to students and peers in psychological distress, seeking help, utilizing campus support services, as well as to reduce the prevalence of untreated symptoms at the community-level. Yet, they have been almost exclusively evaluated for their impact on trainee knowledge and skills (Lipson, 2014). Anti-stigma programs in higher education are another category of intervention almost entirely evaluated for impact on an individual level (Yamaguchi et al., 2013). At this level, they have shown weak effects (Clement et al., 2013; Mehta et al., 2015; Thornicroft et al., 2016; Yamaguchi et al., 2013). Stigma, however, is acknowledged to operate at individual, interpersonal, community, and structural levels (Corrigan et al., 2004; Hatzenbuehler, Phelan, & Link, 2013; White Hughto et al., 2015); growing research outside of higher education has demonstrated the impact of community and structural stigma on mental health outcomes and healthcare utilization (Downing & Przedworski, 2018; Goldenberg et al., 2020b, 2020a; Hatzenbuehler, Bellatorre, et al., 2014). Future research might conceive of and evaluate higher education interventions for impact on community- and structural-level stigma.

Study 3 (Chapter 4) demonstrated the impact of a community-level construct, previously unmeasured in higher education: policy visibility across the student body. Policy visibility is a community-level measure of policy awareness. Finding that personal awareness and policy visibility interact to influence student mental health outcomes and equity, suggests value to studying and measuring the construct at both levels. Relatedly, the significant proportion of students who reported problems with campus police presence and support for policy change in
Study 2 (Chapter 3), without necessarily having any personal encounters with police, could suggest that interpersonal and community dynamics are shaping students’ perspectives. Contemporary ecological models emphasize that key to understanding health impacts of social contexts is the “construction that participants…make of it” (Burke, Joseph, Pasick, & Barker, 2009; Kingry-Westergaard & Kelly, 1990; Richard, Gauvin, & Raine, 2011, p.310). Literature on adolescents shows that young people co-construct reality with friends (Steinberg, 2014). Are students influenced by the experiences of their peers and the communities and individuals with which they identify? How might the frequency and quality of police interactions within one’s communities shape mental health in addition to or beyond personal experiences? More research is needed to understand what community-level variables and constructs shape student mental health. Then, interventions could be designed and evaluated for their impact on these community-level factors. The worthiness of such endeavors is supported by effective community-wide interventions that have shifted community norms, increased referrals and help-seeking, and reduced suicidal behavior, for example, in K-12 settings and the Air Force (discussed in Chapter 2) (AFMOA/SGZP, 2001; Ahern et al., 2018; Aseltine & DeMartino, 2004; Ciffone, 2007; Knox et al., 2003, 2010; Schilling et al., 2014; Wasserman et al., 2015; Wyman et al., 2010). Colleges and universities may be more open, dispersed communities than K-12 schools or the Air Force, but there are likely untapped and unmeasured opportunities to improve student mental health through shifting community norms and behaviors in residence halls, departments, and academic programs.

In addition to identifying intervention opportunities at all levels of the socioecological model and the need and value for more research and measurement across more macro levels in higher education, this dissertation lends support for better attending to interaction across levels of influence. The importance of understanding the complex and dynamic interactions between levels of influence is an underappreciated aspect of socioecological theory (Hawe et al., 2009; McLaren & Hawe, 2005). As mentioned above, my dissertation research on personal awareness and visibility of TGGD-inclusion policies powerfully illustrates the importance of considering how levels of influence interact to shape student outcomes. My findings suggest that being personally aware of inclusion policies may have different implications for cisgender and TGGD students in contexts where their peers are, and are not, also aware of these inclusion policies. My review of the existing literature on college student experiences with policing reveals that students
and researchers conceive of policing as influencing students via interpersonal, community, and structural mechanisms (Dizon, 2021; Jenkins et al., 2020; Mills, 2020). However, research has not clearly delineated or measured these levels of influence or considered how they interact to shape student outcomes. Doing so will aid in the design of effective interventions to improve mental health outcomes. In calling for policy change at multiple levels – e.g., providing anti-racism or mental health training to existing officers to improve interpersonal interactions as well as shifting resources to invest in community support services and decrease or abolish the presence of police – students themselves are recognizing the need for multilevel intervention.

A decade ago, Richard and colleagues (2011) conducted a critical review of the use of ecological models in health promotion between 1990-2010 and concluded that “more fully operationalizing the ecological approach may be key to developing a more thorough and nuanced understanding of complex health problems and means of addressing them to promote the public’s health” (Richard et al., 2011, p. 322). My dissertation comes to the same conclusion and suggests that more fully operationalizing the ecological approach is key to developing and identifying means to address the public health problem of student mental health. Colleges and universities are dynamic, complex systems with mutual interactions across their components; they have a collective capacity greater than the sum of their parts (Hawe et al., 2009). For interventions to seize their full potential to positively shape and protect student mental health, we must understand and harness the dynamic properties, feedback loops, social processes, and collective capacities of these institutions (Hawe et al., 2009). Developing and testing multi-level interventions, expanding focus on community and institutional-level interventions, clarifying and strengthening levels of measurement in evaluations, and further studying interactions across levels of influence will lead to a more policy-focused approach and advance progress for student mental health.

An Equity-Minded Approach: Focus on Populations Facing Mental Health Inequities

Mental health inequities are significant at colleges and universities and have not declined over the last decade even as institutions have invested in better supporting student mental health (Brittain & Dinger, 2015; Chen et al., 2019; Lipson et al., 2018, 2022; Liu et al., 2020). TGGD students face symptoms of mental health disorders and suicidality at 2-4 times the rate of their cisgender peers (Lipson, Raifman, et al., 2019). SOC are significantly less likely than White students to receive mental health treatment (Lipson et al., 2018). There are also institutional
inequities: community colleges and 2-year institutions have fewer resources to invest in student mental health than 4-year schools (Eisenberg et al., 2016; Katz & Davison, 2014; Lipson, Phillips, et al., 2021). Current efforts have failed to address inequities in several ways. As revealed in Study 1 (Chapter 2), intervention evaluations have done a poor job of documenting their samples along important axes of student identity that relate to mental health inequities such as race, gender identity, sexual identity, socioeconomic status, country of origin (international students vs. not), and documentation status (Conley, 2015; Conley et al., 2015, 2017; Yamaguchi et al., 2013). Where sample characteristics have been identified, the research has largely been conducted with White females at predominantly White 4-year institutions (Conley et al., 2015, 2016; Davies et al., 2014; Farrer et al., 2013; Regehr et al., 2013; Rith-Najarian et al., 2019; Yamaguchi et al., 2013). In addition to inadequately addressing for whom existing interventions work and testing them with diverse samples, the literature reviews conducted for Studies 2 and 3 (Chapter 3 + 4) demonstrate that existing research has seldom measured mental health inequities as an outcome. For example, studies have focused on the experience of TGGD students or Black students. This research is tremendously important, but it fails to shed light on whether policies or interventions hold the potential for reducing inequities. The lack of focus on reducing inequities as an outcome of interest has likely shaped what practices, policies, and interventions have received attention and been neglected in the research literature and practice guidelines. For example, significant and growing evidence from outside of higher education points to policing as an area of practice and policy likely shaping mental health inequities (Bor, Venkataramani, Williams, & Tsai, 2018; Devylder et al., 2018; Devylder et al., 2017; Geller et al., 2014; Turney, 2021); yet policing policy and practice is rarely part of dialogue or efforts to improve college student mental health (Jed Foundation, 2019; Steve Fund & Jed Foundation, n.d.; Wesley, 2019).

This dissertation indicates that research is needed to better understand for whom existing interventions are effective, with greater attention to what works in resource-limited contexts and for populations facing the greatest mental health inequities. Public health theory and research demonstrate that interventions must be designed and evaluated specifically for impact on populations facing inequities; population interventions may improve health overall but exacerbate disparities by consistently leaving behind or having the least impact on “vulnerable populations” facing the greatest inequities (Frohlich & Potvin, 2008). While limited research has demonstrated some similar intervention effects across race (Mattanah et al., 2012; Stice et al.,
2014), my work on policing and TGGD-inclusion policies begins to illustrate differential impacts of institutional policy across race and gender identity. Study 2 (Chapter 3) additionally highlights the importance of an intersectional approach that not only considers race or gender identity or another axis along which students experience marginalization but explores how interventions and institutional policy and practice shape the experiences of students with intersecting identities. Researchers and practitioners need to move beyond separately classifying “who has it worse” by race, gender, sexuality, SES, or international student status, and move to considering how racist, cissexist, classist, homophobic, ablest systems interact and intersect to shape student lives and outcomes and can be shifted to enhance equity.

Throughout, this dissertation speaks to and provides evidence of the need for more inclusive forms of measurement of student identity (e.g., moving beyond binary measures of sex to capture and examine diversity across the full range of gender identities) and more nuanced work understanding differences across and within diverse and marginalized populations. For example, Study 2 (Chapter 3) contributes to past work on students and policing by: 1) including a diverse, representative sample of URM students; 2) including Latinx, Arab, American Indian, Filipino, and Multiracial students when past research has mostly only included Black students; and 3) illustrating the importance of separately considering the experiences and perspectives of Asian, White, and underrepresented racial minority (URM) students when past work has excluded Asians or grouped Asian and URM students together. It advances past research by examining the intersection of gender and race/ethnicity. However, the need to group all TGGD and URM students into broad categories is a noted limitation. The dissertation highlights opportunities for future research to better understand the experiences of diverse TGGD and racial/ethnic minority populations. As has been a theme of this conclusion chapter, population survey research can contribute to this needed research. Higher education is increasingly diverse (Espinosa et al., 2019); large-scale population surveys in higher education provide valuable data on populations not represented in large enough numbers in other studies to get full consideration and analyses. For example, such large-scale surveying in Study 2 (Chapter 3) enabled examining the rarely studied experiences of TGGD students and, even more seldomly considered, the experiences of TGGD URM students (Lett et al., 2020; Lipson, Raifman, et al., 2019; Patterson et al., 2017). Large-scale population survey research in higher education presents an opportunity to better understand the health and wellbeing of populations facing inequities and populations
that have received inadequate attention in research and scholarship (e.g., TGGD URM, Arab and Muslim populations) during a critical time of development and in a setting where there are numerous opportunities to intervene. Large-scale population research across multiple institutions also facilitates understanding of diverse institutional types and widely varying student bodies.

**Conclusion**

As the writing of this dissertation came to a close, the Surgeon General of the United States issued a rare advisory warning of a “youth mental health crisis” (Office of the Surgeon General, 2021b). The advisory outlined the degree to which mental health problems were on the rise pre-pandemic and appear to be exacerbated by it (Office of the Surgeon General, 2021b). We are still gaining a full understanding of how the ongoing pandemic is impacting the mental health of current college students, but today’s “youth in crisis”—experiencing escalating levels of depression, anxiety, and suicidality—are the next generation of college students (Office of the Surgeon General, 2021b; Panchal et al., 2020; Racine et al., 2021). Student mental health is a public health challenge for colleges and universities that will not go away any time soon. In addition, the pandemic has exacerbated health and economic inequities and limited the resources many institutions of higher education have available to invest in student mental health (Hoyt et al., 2020; National Academies of Sciences Engineering & Medicine, 2021; Office of the Surgeon General, 2021b). A more evidence-based, policy-focused, equity-minded approach is urgently needed to ensure the most effective use of limited funds, identify population approaches to cost-efficiently improve outcomes at scale, and address widening mental health inequities.

As the Surgeon General noted, “coming out of the COVID-19 pandemic, we have an unprecedented opportunity as a country to rebuild in a way that refocuses our identity and common values, puts people first, and strengthens our connections to each other” (Office of the Surgeon General, 2021, p. 4). His advisory highlights that moving beyond individual change to “systemic change” is essential and emphasizes that schools that “surround young people and shape their day-to-day lives…have an important role to play” (Office of the Surgeon General, 2021, p.5). This dissertation sheds light on next steps for researchers, policy makers, practitioners, and students in higher education who must collaborate to bridge research and practice, pursue a more ecological and intersectional approach to research and intervention, and strategically and powerfully invest in advancing mental health equity. It suggests that TGGD and racial minority students will likely benefit from changes to institutional policy and practice that
are both specifically designed to foster their inclusion and are widely promoted and enforced across the student body. More work is needed to fully develop and evaluate multilevel interventions that change community norms and practices through comprehensive implementation across schools and colleges. Yet, the disruption of the pandemic makes this an ideal moment for transforming postsecondary institutions into health-promoting environments where all members of their rapidly diversifying student population can thrive (Hoagwood & Kelleher, 2020; National Academies of Sciences Engineering & Medicine, 2021). Rigorous and comprehensive pursuit of solutions to address college student mental health and mental health equity is critical and urgent and will greatly benefit students (66% of U.S. high school graduates), schools, and society (McFarland et al., 2018).
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