



Mental Health in College Populations: A Multidisciplinary Review of What Works, Evidence Gaps, and Paths Forward

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Contents

Introduction	2
What Is Known About College Student Mental Health	4
Scope of Mental Health Problems and Growth over Time	5
The Importance of and Opportunity in Higher Education Settings	6
Variation Across Student Populations	6
Mental Health Risk and Protective Factors	7
Review of Intervention Evidence for Addressing Student Mental Health	12
Organization and Contribution of Review	12
Individual-Level Interventions	16
Interpersonal Interventions	28
Community-Level Interventions	39
Institutional Interventions	47
Public Policy: The Enabling Environment	54
Summary of Intervention Evidence	57
Recommendations for Strengthening the Use and Availability of Research	57
Recommendation #1 (Improving the Use of Research): Develop and Maintain a Centralized and Easily Accessible Database of Evidence	58
Recommendation #2 (Improving the Use of Research): Provide Active Support for Decision-Makers	60
Recommendation #3 (Improving the Use of Research): Enhance Incentives for Using Evidence to Inform Practices	60

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Recommendation #4 (Increase the Supply of Evidence): Invest in Innovative Research to Address Major Gaps 61

Recommendation #5 (Both Improve the Use of Research and Increase the Availability): Develop and Strengthen Networks of Practitioners and Researchers 64

Summary/Conclusion 65

References 65

Abstract

The mental health of students has become one of the top concerns in higher education. The number of students reporting distress and seeking services has dramatically increased, and colleges and universities are struggling to address these challenges. A rich and growing body of research documents the scope of the problem and potential interventions to address it, but this literature is scattered across a variety of academic fields. This chapter aims to bring coherence to this large volume of information through a detailed review of programs, services, practices, and policies that influence student mental health. The review is organized around a socioecological framework, considering interventions at the individual, interpersonal, community, institutional, and public policy levels. It highlights strengths, weaknesses, and gaps in the evidence. The chapter concludes with recommendations for enhancing how research and data can inform practice moving forward. A more evidence-informed approach is needed to address the growing challenges of student mental health in higher education.

Keywords

Mental health · College · Postsecondary · Students · Review · Evidence base · Depression · Anxiety · Well-being · Belonging · Social support · Discrimination · Equity · Structural factors · Policy · Socioecological · Interpersonal · Institutional · Community · Public health · Prevention · Intervention

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 et al., 2020). These concerns have been growing for a long time, well before the COVID-19 pandemic. The number of students reporting 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 et al., 2019). Student mental health has implications not only for health and well-being but also for academic outcomes such as grades and retention (Eisenberg et al., 2009).

To guide responses to these challenges, several national organizations have gathered input from experts and stakeholders. 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 comprehensive 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 reports and frameworks generally emphasize a holistic, public health approach to student mental health, with attention not only to treatment and crisis services but also to prevention and promotion of mental health.

This chapter aims to build on those foundational reports and frameworks by moving toward more specific, concrete actions in both research and practice and the intersection between the two. The chapter addresses the broad question, *how can research and data inform practice more effectively, with the ultimate goal of addressing student mental health more effectively?* Our central argument is that a more strategic, evidence-informed approach is needed to guide the use of limited resources in addressing the growing challenges related to student mental health. The chapter offers a first step in that direction by compiling a detailed review of evidence regarding the effectiveness of a wide range of strategies to address student mental health.

To clarify the scope of this chapter, we note our focus is 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 these are not an explicit focus of this chapter. We do believe, however, that our recommendations likely have relevance for addressing alcohol and substance use in college populations, and we note some of these connections throughout.

This chapter is a commentary review that draws on our careful but not systematic review of the research literature, along with our knowledge of the field. We have each been focused on student mental health as a primary research area for 10 years or more, and together we lead the Healthy Minds Network, a national research initiative that has collected extensive data on student mental health since 2005. Our perspective is also greatly enriched by long-standing partnerships with colleges and universities (henceforth, colleges) and organizations such as Active Minds (where one of us was a Vice President for several years), the Jed Foundation, the Steve Fund, ACHA, the Center for Collegiate Mental Health (CCMH), the Mary Christie Institute (MCI), ACE, and many others.

Our hope is that this review will help 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. Our review draws deliberately from a wide variety of disciplines and levels that we could identify as relevant to understanding opportunities to improve student mental health.

The next section of this chapter provides a brief overview of what is known about student mental health, such as the rising prevalence, key risk and protective factors, and variation across student populations. It provides context for the detailed review of evidence that follows. The review examines 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. The review also comments on how the evidence aligns or misaligns with current practice for student mental health in higher education. In the final section of the chapter, we offer a set of specific recommendations for strengthening the use and availability of research and data in the interest of guiding practice toward a more effective response to the growing challenges in college student mental health.

What Is Known About College Student Mental Health

A proliferation of research over the last two decades has documented (i) the prevalence of college student mental health symptoms and trends over time, (ii) the importance of and unique opportunities for mental health prevention and intervention in higher education settings, (iii) variation in mental health and help-seeking across student populations, and (iv) key correlates of student mental health. In the following four subsections, we offer a concise distillation of this information.

We draw on a number of key studies, including our Healthy Minds Study (HMS), which is the only annual population survey that focuses specifically on student mental health (Healthy Minds Network, 2021). HMS has been conducted at over 400 colleges cumulatively since 2007 (participation varies each year). HMS is one of a handful of large-scale sources of data that contain measures of mental health in college populations. Others include the National College Health Assessment (NCHA) by ACHA, which addresses a full range of health issues, including student mental health (ACHA, 2021), and CCMH, which collects standardized data from counseling center clients at hundreds of schools nationwide (Center for Collegiate Mental Health, 2021).

In addition to the reports described above, several books have sought to describe the state of college mental health; these include (presented in chronological order): *College of the Overwhelmed: The Campus Mental Health Crisis and What to Do About It* (Kadison & DiGeronimo, 2004), *Stress and Mental Health of College Students* (Landow, 2006), *Mental Health Care in the College Community* (Kay & Schwartz, 2010), and *Promoting Behavioral Health and Reducing Risk among College Students: A Comprehensive Approach* (Cimini & Rivero, 2018). There have also been reports describing campus mental health in the context of the COVID-19 pandemic, such as the American Council on Education's, 2020 report

Mental Health, Higher Education and COVID-19: Strategies for Leaders to Support Campus Well-being (American Council on Education, 2020). We list these publications so that readers have a sense of other key sources of information on the state of college mental health.

Scope of Mental Health Problems and Growth over Time

High and Rising Prevalence of Mental Health Disorders

Over the last 10 years, the prevalence of mental health problems has risen steadily among college students (Lipson et al., 2019). In HMS data, we have seen a particularly notable increase in symptom prevalence over the last 5 years (see Fig. 1). In 2016, 25% of students screened positive for symptoms of depression (>10 on the Patient Health Questionnaire-9 (Kroenke et al., 2001) and 21% for anxiety (>10 on the Generalized Anxiety Disorder-7 scale (Spitzer et al., 2006). In fall of 2020, prevalence had increased to 39% and 34%, respectively. As shown in Fig. 1, the overall trend has continued during the COVID-19 pandemic. In other words, we do not see a dramatic increase beginning in spring 2020 but rather a continuation of a troubling trend.

Trends in Help-Seeking for Mental Health

As prevalence rates have increased, so too have rates of mental health service utilization in college populations. In the two most recent years of HMS data, 53–56% of students with a positive screen for depression and/or anxiety had received some form of mental health treatment in the past year. By comparison, this number was in the range of 19–26% during early years of our study. Consistent over the years, the most common source for therapy is the campus counseling center (Lipson, Lattie, & Eisenberg, 2019).

Though rates of treatment have increased, there remains substantial unmet need for mental health services in college populations. This is often quantified as the “treatment gap” – the proportion of individuals with an apparent need for services who have not received treatment (Kohn et al., 2004). By this definition, the depression/anxiety treatment gap in fall 2019 was 44% (Healthy Minds Network, 2019).

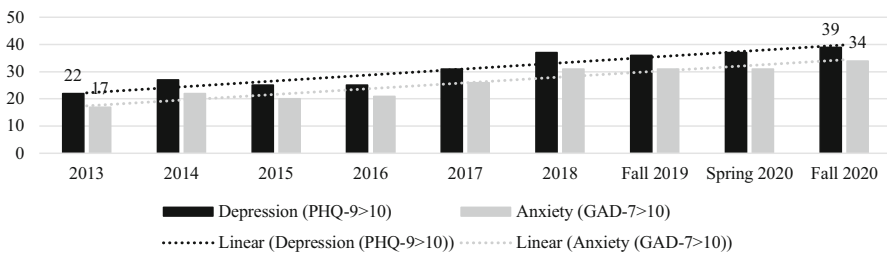


Fig. 1 Rising Prevalence of Depression and Anxiety Symptoms, 2013–2020. (Data source: The Healthy Minds Study)

Though not all students with a positive screen require formal treatment, it is clear that many students are experiencing significant symptoms but not receiving services. While we see some inequalities in terms of prevalence, inequalities are even more pronounced for service utilization. This is particularly true for Students of Color and low-income, first-generation students who have, on average, lower rates of accessing mental health treatment (Lipson et al., 2018).

The Importance of and Opportunity in Higher Education Settings

High and rising prevalence of mental health problems are not unique to college populations; available evidence reveals comparably high rates in adolescents and young adults writ large (Blanco et al., 2008). Though these problems are not unique to student populations, higher education does provide a unique setting to identify, prevent, and treat mental illness. First onset of mental health problems typically occurs before or during the traditional college years (ages 18–24); 75% of lifetime mental illnesses emerge by age 24 (Kessler et al., 2007). As such, many students will experience the first symptoms of mental health problems in college. The median delay from symptom onset to first treatment is about 10 years (Wang et al., 2005). Reducing this delay is critical to preventing the costly, negative consequences of untreated disorders on academics, career trajectories, lifetime earnings, physical health, and more.

Student mental health is a significant predictor of many important functional outcomes, including social connectedness (Hefner & Eisenberg, 2009; Kawachi & Berkman, 2001), academic performance (Arria et al., 2013; Eisenberg et al., 2009), and future workplace productivity (Wang et al., 2007). Our research has shown that depression is associated with a twofold increase in the likelihood of dropping or stopping out of college without graduating (Eisenberg et al. 2009). National dialogues around retention in higher education and student mental health have been largely separate, siloed conversations. Given that the same students who have, on average, lower rates of college persistence and retention also have, on average, higher levels of unmet mental health needs – namely, Students of Color and first-generation, low-income students (Lipson et al., 2018) – there is an urgent need to bring together these two dialogues to advance equity in both domains.

Variation Across Student Populations

As noted, mental health concerns are prevalent and rising in student populations. Here we describe what is known about variation in symptom prevalence and use of services. We discuss what is known about mental health inequalities in terms of which populations are experiencing worse mental health outcomes and/or reduced access to services and resources. In HMS, we have found a higher prevalence of mental health problems among undergraduate compared to graduate students;

transgender and gender nonconforming students compared to cisgender students; cisgender females compared to cisgender males; lesbian, gay, bisexual, and queer students compared to heterosexual students; and students from low socioeconomic backgrounds compared to those from higher SES backgrounds (Backhaus et al., 2021; Eisenberg et al., 2013; Lipson, Raifman, et al., 2019). We also found that Arab/Arab American students, an understudied group, have a higher prevalence of mental health symptoms than other racial/ethnic groups (Lipson et al., 2018). Across fields of study, we found higher rates of mental health problems among students in the arts and humanities (Lipson et al., 2016).

Among students with one or more mental health problems, we find that rates of mental health service utilization are, on average, significantly lower among cisgender males, international students, first-generation and low-income students, and Students of Color (Dong et al., 2020; Lipson et al., 2018). Lower rates of service utilization in these groups have also been noted in other studies (Sontag-Padilla et al., 2016). Across fields of study, the treatment gap is wider among students in business and engineering (Lipson et al., 2016). Community college students, particularly those from traditionally marginalized backgrounds, are significantly less likely to have used services compared to students on 4-year campuses, and cost was the most salient treatment barrier in an analysis of data from 23 community colleges (Lipson et al., 2021). There is a need for more intersectional research examining variations in symptoms and help-seeking, especially for students who hold multiple minoritized identities (e.g., first-generation Students of Color).

It is important to note that these differences are due to context, differential treatment, and life experiences (rather than a biological predisposition). Inequalities are neither permanent nor immutable but rather changeable through altering risk and protective factors.

Mental Health Risk and Protective Factors

This section describes key “risk” and “protective factors,” meaning those factors that are negatively or positively associated with mental health. We begin by examining factors that operate primarily on an individual level, followed by interpersonal, community, institutional, and public policy-level factors (to parallel our approach to reviewing interventions).

Individual Factors

As noted, data reveal high and rising prevalence rates of mental health problems among adolescents and young adults writ large (regardless of college status) (Blanco et al., 2008). That said, there are some unique factors that shape mental health risk for college students (Landow, 2006). These include separation from the family unit, which can be especially challenging for students from certain cultures (Crockett et al., 2007; Rodriguez, 2018); “culture shock,” especially for first-generation students (Kish, 2003); academic pressures (Fang et al., 2010); student debt (Walsemann et al., 2015); and uncertainties about job prospects (Landow, 2006).

Perhaps the most common risk factor is financial stress. In HMS, among students who report their financial situation as “always stressful” or “often stressful,” 60% and 45%, respectively, have apparent mental health symptoms relative to 29% of those reporting “never stressful” (Eisenberg et al., 2018).

A substantial body of literature has shown that trauma and assault are also key risk factors for mental health disorders (Khadr et al., 2019; Lilly et al., 2011). For example, over two-thirds (67%) of students who have experienced past-year assault screen positive for one or more mental health conditions in HMS (Eisenberg et al., 2018). Additionally, substance use, particularly binge drinking and marijuana use, is a common risk factor in college populations. Unhealthy sleep habits, as measured in HMS by the Insomnia Severity Index (Morin et al., 2011), are a cause and consequence of mental health problems. Over half of students experience at least sub-threshold sleep difficulties. While 16% of students with none/minimal sleep problems screen positive for mental health problems, 72% and 88% of students with moderate and severe sleep problems, respectively, meet criteria for one or more mental health problems (Eisenberg et al., 2018).

Coping skills are well-established protective factors. In HMS, we administer the Acceptance and Action Questionnaire-II (Bond et al., 2011), which measures psychological flexibility and experiential avoidance. Students with high levels of flexibility have better mental health outcomes (17% prevalence) relative to students with low flexibility (91% prevalence) (Eisenberg et al., 2018).

It is also important to understand individual-level risk and protective factors that correlate with use of mental health services. In general, mental health literacy and knowledge of available mental health services is high in college students (Eisenberg et al., 2012), though we do see lower levels of knowledge among Students of Color (Lipson et al., 2018). Rates of health insurance coverage are high; in the most recent wave of HMS data, 95% of students reported having insurance, 90% of whom indicated that their insurance provides sufficient coverage to meet their needs for mental health care (Eisenberg et al., 2012). The aforementioned increasing use of services is undoubtedly related to decreasing levels of stigma reported by students. In HMS, we focus on two forms of stigma: personal and perceived. While both forms have decreased over time, our research has shown that personal stigma, but not perceived stigma, is a significant predictor of service utilization (Golberstein et al., 2009). In 2007, 12% of students endorsed the personal stigma statement “I would think of less of someone who has received mental health treatment”; in spring 2020, less than 7% endorsed this statement.

Interpersonal Factors

The college years represent an important developmental transition and a time of newfound autonomy over health behaviors and decision-making (including use of health services). Peers play a key role in shaping mental health and help-seeking attitudes and behaviors, positioning students as key “gatekeepers.” Students in distress are most likely to turn to their peers for support (Drum et al., 2009; Hennig et al., 1998). Relatedly, students with higher-quality social support are less likely to experience mental health problems than students with lower-quality social support

(Hefner & Eisenberg, 2009). Additionally, having a supportive advisor is an important protective factor for mental health as well as other outcomes, such as academic performance (Hurtado et al., 2011; Hyde & Gess-Newsom, 2000; Kahveci et al., 2008). Similarly, loneliness and isolation are risk factors for poor mental health (Hefner & Eisenberg, 2009). In fall 2020, we added the three-item UCLA Loneliness Scale (Hughes et al., 2004) to HMS; over 60% of students endorsed feeling a lack of companionship, feeling left out, and feeling isolated from others (Healthy Minds Network, 2020).

Discrimination is also a key risk factor for student mental health. Discrimination comes in many forms and is experienced differently across groups and settings. While it is important to understand the nuanced ways in which discrimination manifests, the evidence is consistent: experiencing discrimination negatively impacts mental health (Schmitt et al., 2014). For example, race-based discrimination has been linked to psychological distress, anxiety, and depressive symptoms among Students of Color (Schmitt et al., 2014; Wei et al., 2010). Being *misgendered* or *deadnamed* (referred to by the wrong pronoun or a former name) harms transgender and gender nonconforming student mental health (Seelman, 2016).

Sense of belonging (the human need to belong to and be accepted within a community) is known to positively influence a wide range of outcomes (Baumeister & Leary, 1995), including mental health (Anderman, 2002; Gummadam et al., 2016; Hagerty et al., 1996; Hoyle & Crawford, 1994; Mounts, 2004; Shochet et al., 2006). In HMS, we ask students their level of agreement with the statement “I feel I am a part of the campus community.” Among those with the lowest levels of belonging, 51% screen positive for one or more mental health problems relative to 27% among those with the highest levels of belonging (Eisenberg et al., 2018).

Community Factors

In HMS, we include several survey items designed to measure community norms around mental health. For example, students are asked the extent to which they agree “mental health is a priority at my school” and “we are a campus where we look out for each other.” In college communities supportive of mental health, students are less likely to experience mental health problems and more likely to access services (Sontag-Padilla et al., 2016).

Learning environments also influence student mental health. Research into the practice of normalizing the distribution of grades (i.e., grading on a curve) suggests that it engenders social comparisons (Fines, 1996) and competition, which produces an extrinsic performance orientation to learning (Dweck, 2000). In this way, competition may also be related to depression and anxiety as a function of social comparisons about academic performance (Posselt & Lipson, 2016).

Institutional Factors

There is a small but growing body of evidence around institutional correlates of student mental health. In HMS, we have found considerable differences in prevalence across institutions, with some schools experiencing rates several times higher than others; we have also found that these variations cannot be easily explained by

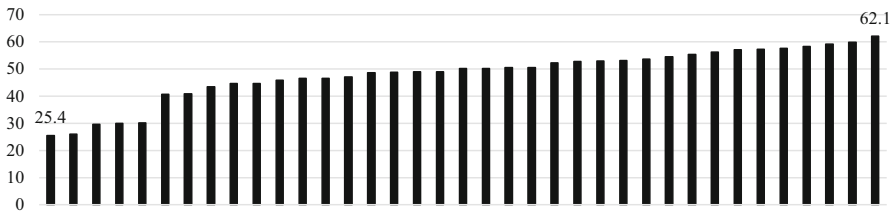


Fig. 2 Depression and Anxiety Symptoms across Institutions, fall 2020. (Data source: The Healthy Minds Study)

basic institutional characteristics (Eisenberg et al., 2013, 2011; Lipson et al., 2018). Figure 2 displays the prevalence of students screening positive for depression and/or anxiety (PHQ-9 and/or GAD-7 > 10) at each school (represented as bars) that participated in HMS in fall 2020: prevalence rates range from 25% to 62% of students.

In general, we have found the following characteristics to be associated with higher prevalence: doctoral-granting, public, large enrollment, nonresidential, less academically competitive, and lower graduation rates (Lipson et al., 2015). Students on campuses with larger enrollment may have access to more social interactions but may feel more anonymous and less connected to their community. Similarly, students at nonresidential institutions spend less time on campus and may have fewer social ties. We have also examined mental health needs among community college students, finding that overall prevalence rates are comparably high for community college and 4-year students (Lipson et al., 2021). Though prior research has revealed differences in other key outcomes for Students of Color at minority serving institutions versus those at predominantly white institutions (e.g., for student retention) (Mcclain & Perry, 2017), relatively little is known about the mental health of Students of Color at MSIs relative to PWIs.

Mental health problems appear to be highest and treatment utilization lowest at institutions that also tend to have fewer resources (Lipson et al., 2015). CCMH's Clinical Load Index (CLI) provides counseling centers with a score representing the "standardized caseload" for the center. Low CLI centers are more likely to be at smaller institutions, while high CLI centers are more likely to be at larger institutions. Higher CLI scores were associated with substantially fewer appointments, longer delays between appointments, and significantly less improvement in clinical outcomes (CCMH, 2021).

Research thus far has largely focused on immutable institutional factors that correlate with student mental health. As described in the second section of this chapter, we want to emphasize *mutable* drivers of mental health and inequalities therein, of which institutional sector (public vs. private) is not. In other words, even if we know that prevalence rates are higher and help-seeking lower at public institutions, it is more useful to understand alterable factors operating at a system-level that may be driving these differences (e.g., campus policies).

For most students, their college years will be the only time when a single setting encompasses the main aspects of their daily existence – academic, residential, social, and health. These aspects of daily life are shaped by campus policies. Policies often influence mental health via a mediating factor, for example, financial aid policies influence students’ financial stress, which, as noted, is one of the most significant predictors of mental health (Eisenberg et al., 2018). Some policies may uniquely affect certain student groups. For example, transgender and gender nonconforming students are uniquely affected by policies that dictate whether or not students are allowed to change their name in campus records as well as policies around gender-inclusive restrooms and residence halls. Studies have found that being denied access to restrooms or gender-appropriate housing in college is associated with a higher risk for suicidality (Seelman, 2016). Given that transgender and gender nonconforming students have significantly higher prevalence of mental health problems and suicide risk (Lipson, Raifman, et al., 2019), it is important to identify system-level opportunities for prevention.

Public Policy-Level Factors

Student mental health is also affected by national, state, and local policies as well as broader sociopolitical events, particularly for groups specifically threatened by those events. For example, the 2016 presidential election was associated with a rise in anti-Muslim rhetoric, policy, and hate crimes (Musu et al., 2019). In HMS data, we found that the election was associated with a significant rise in the proportion of Muslim students experiencing mental health symptoms in the 14 months postelection compared with the 14 months prior (Abelson et al., 2020). More recently, racism and acts of violence against Asian American/Pacific Islanders (AAPI) have increased. In HMS, over one-quarter of AAPI students reported experiencing discrimination due to their race/ethnicity as a result of the pandemic. Over two-thirds of respondents who endorsed this item met criteria for mental health conditions (Zhou et al., 2021 *Working Paper*).

The pandemic has also increased some of the known risk factors for mental health, including financial stress and grief, likely widening inequalities given the disproportionate burden of disease among Communities of Color. The beginning of the pandemic coincided with well-publicized police killings of unarmed Black people. A 2020 study found that Students of Color experienced symptoms of post-traumatic stress disorder after watching social media videos of unarmed Black men being killed by police (Campbell & Valera, 2020). It will be important to continue to collect and disseminate data to understand mental health needs in college populations with a particular eye toward identifying and addressing inequalities that may be exacerbated by the pandemic, economic stress, and racism.

As described above, risk and protective factors across levels point to important opportunities for mental health prevention and intervention in college settings. The next section of this chapter describes the evidence base for a wide range of mental health interventions, many aiming to decrease the risk factors and enhance the protective factors described.

Review of Intervention Evidence for Addressing Student Mental Health

Organization and Contribution of Review

We are not aware of an existing integrated review of interventions across all levels of the socioecological model (Fig. 3), to address college student mental health. We 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 well-being 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, 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 et al., 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 et al., 2018, 3; World Health Organization, 2002).

A number of valuable sources review interventions that address specific mental health disorders (e.g., depression: Buchanan 2012), promote specific protective factors (e.g., sleep: Friedrich & Schlarb, 2018), 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*

Fig. 3 Socioecological Model + Organizing Framework for Intervention Evidence

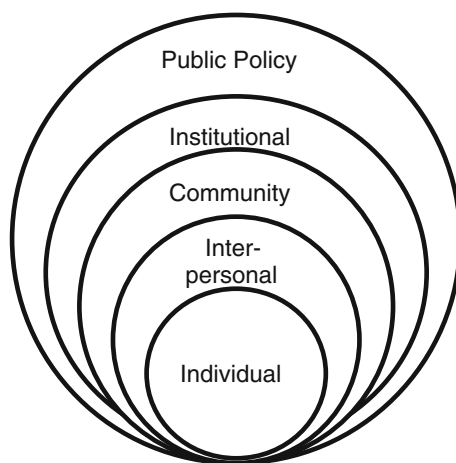
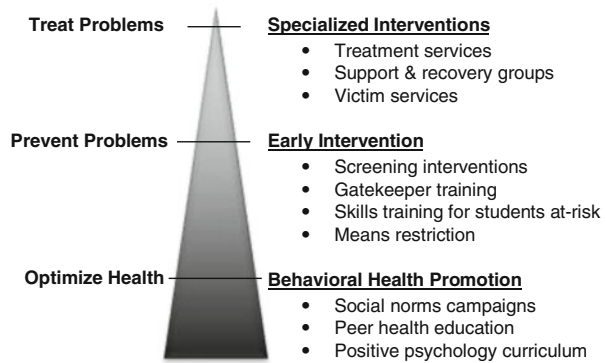


Fig. 4 Behavioral Health Prevention Spectrum. *Note.* Figure depicts a prevention framework for addressing student mental health, as depicted by Cimini and Rivero (2018)



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 we outline some of these methods; we also clarify why we chose to organize our review based on the socioecological model.

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 (see Fig. 4). 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). We do not use a prevention framework to organize our review since intervention types and institutional efforts in higher education often cut across levels of prevention and intervention.

We 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 offices and settings within higher education (student affairs, academic affairs, health, and wellness services) for adoption and evaluation. We aim instead to present information for cross-disciplinary teams of researchers and practitioners working to address student mental health. Likewise, we 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, Durlak, & Dickson, 2013).

We instead categorize interventions according to levels of the socioecological model, a framework for understanding varying factors influencing health and well-being (Bronfenbrenner, 1979; McLeroy et al., 1988). This approach aligns with global *Healthy University* frameworks and initiatives (Dooris & Doherty, 2009; Orme & Dooris, 2010; Tsouros et al., 1998). We group interventions according to whether they target individual, interpersonal, community, or institutional factors or public policy (see Fig. 5). In each section below, we 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, we 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. We 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, we 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, 32). We assess the degree to which the research literature has taken this into account.

We focus on scientific evaluations of interventions, but we note there are additional bodies of evidence that address the context and conditions under which effective interventions can be developed, implemented, and sustained. We 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.

We 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 et al., 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

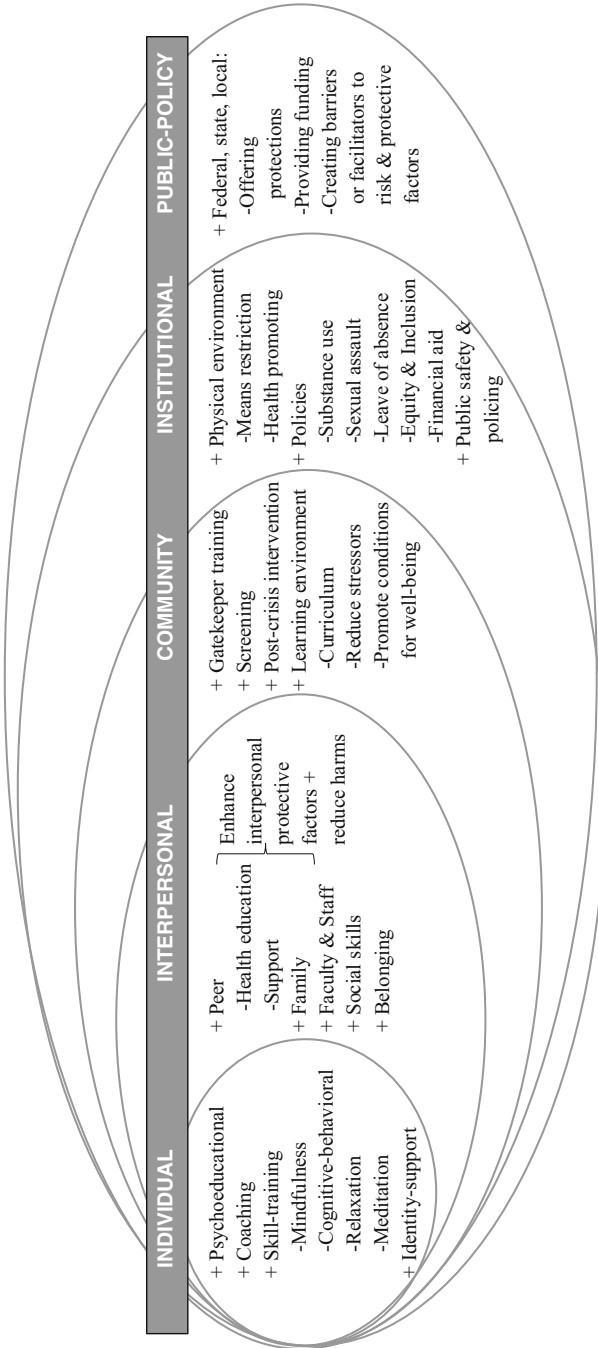


Fig. 5 Intervention Types to Address College Student Mental Health Across Socioecological Levels. *Note.* Figure presents a socioecological framework for understanding the diverse array of available interventions to address student mental health in higher education. Individual interventions address knowledge, attitudes, help-seeking, skills, and strengths. Interpersonal interventions

research on “traditional” care models is needed, but we focus here on public health interventions for addressing college student mental health.

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-based supports the efficacy of such interventions (Buchanan, 2012; Cimini & Rivero, 2018a; Conley et al., 2015, 2016; Reavley & Jorm, 2010; Regehr et al., 2013; Rith-Najarian et al., 2019; Shiralkar et al., 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). We 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



Fig. 5 (continued) 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

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 et al., 2012; Durlak, 1997; Stice et al., 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 ($d = 0.21$) and behavioral intentions ($d = 0.10$), 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 et al. (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 et al., 2012; Thornicroft et al., 2016). For example, while Corrigan et al.’s (2012) meta-analysis of 72 interventions found large effects of contact interventions in changing attitudes in the short term ($d = 0.63$ compared to 0.21 for psychoeducation only), they found only small effects on behavioral intentions ($d = 0.27$ compared to 0.10 for psychoeducation only). Indeed, multiple studies have found mixed or null associations between stigmatizing attitudes and mental health service seeking or use among college students (Eisenberg, Downs, et al., 2009; Golberstein et al., 2009; Gulliver et al., 2012; Han et al., 2006). As such, programs that target behavioral outcomes influenced by the stigmatization process are 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 et al. (2015) reviewed evaluations of 113 social-emotional learning-related prevention and promotion programs: of the 28 didactic-only (not skill-oriented) interventions identified, only 4 were successful (Jones, 2004; MacLeod et al., 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 et al., 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 et al., 2005; Hom et al., 2015, 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 et al., 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 et al., 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-Ouriaghi et al., 2019); this 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 et al., 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, 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 et al., 2006; McDonald et al., 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, 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 ($ES = 0.45$) than psychoeducational ($ES = 0.13$) and skill-training without supervised practice ($ES = 0.11$) universal prevention interventions. Overall, skill-training interventions with supervised skill practice have moderate effects on reducing depression ($ES = 0.39$), anxiety (0.55), stress (0.55), and general psychological distress (0.32) and enhancing social-emotional skills (0.37), self-perceptions (0.35), and academic behaviors and performance (0.30) (Conley et al., 2015). Supervised skill-training interventions outperform 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 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” (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 et al. (2015) found that skill-oriented programs with supervised practice are effective for promoting social-emotional adjustment, 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; 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 et al. (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 reviewed by Conley et al. (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 well-being among first-year college students (Dvořáková et al., 2019; Mahfouz et al., 2018; Tang et al., 2020). Relaxation interventions teach students (using tools like biofeedback) strategies such as progressive muscle relaxation, guided imagery, and breathing techniques to reduce emotional 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 et al., 2008; Rosenzweig et al., 2003; Sears & Kraus, 2009; Shapiro et al., 2007; Shapiro et al., 2008; Shapiro et al., 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, & Dickson, 2013; Conley et al., 2015; Regehr et al., 2013). Conley, Durlak, 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

et al., 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 et al., 2010; Keng et al., 2011) and reducing stress, enhancing well-being, and improving academic outcomes in a variety of settings (Chiesa & Serretti, 2009; Davidson et al., 2003; Eberth & Sedlmeier, 2012), including schools (Zenner et al., 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 et al. (2014) found college students in the popular “Koru” mindfulness program (four 75-min 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 et al., 2021; Proulx et al., 2018; Watson-Singleton et al., 2019; Watson-Singleton et al., 2021).

Cognitive-behavioral and relaxation interventions with supervised practice show promise for improving social-emotional skills and reducing 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 et al., 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 proves mindfulness, cognitive-behavioral, and relaxation skill-training interventions (with supervised practice) are 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 Students of Color, sexual and gender minorities, students with disabilities, and others. These harms negatively impact student mental health (Goodwill et al., 2021; Hwang & Goto, 2008; Pieterse et al., 2010; Woodford, Kulick, et al., 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 et al., 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 et al., 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 et al., 2012). For lesbian, gay, bisexual, and queer college students, self-acceptance (self-esteem and internalized LGBTQ pride) mediates the pathway from discrimination to distress for heterosexism and microaggressions (Woodford, Kulick, et al., 2014).

We are 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 et al., 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, 89). Banks et al. (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” (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 et al., 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 given their potential to be easily accessible, cost-effective, and appealing to students who otherwise might not seek formal help (Conley et al., 2016; Dunbar et al., 2018; Lattie et al., 2019; Ryan et al., 2010).

The COVID-19 pandemic led to a dramatic increase in the use of TDIs, particularly the delivery of counseling sessions via videoconference technology (Gorman et al., 2020). We have not yet seen firm estimates of a parallel increase in use of other TDIs (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 h (range: 1–46 h) (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, 204). These programs are longer, on average, than other prevention programs

in higher education (30 h 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 et al., 2005; Sagar-Ouriaghli et al., 2019; Weisz et al., 2005). Some existing distillation research provides a starting point for identifying intervention active ingredients (see Table 1).

Intervention studies would be strengthened through more objective and diverse outcome measures assessed over the long term (Christensen et al., 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 et al. (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.

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

Table 1 Common Intervention Ingredients of Evidence-Based Programs

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

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 et al., 2016). The binary treatment of male/female in reviews and evaluations also neglects 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 et al., 2018; Klimes-Dougan et al., 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 et al. (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 US 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 et al. (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 et al., 2018). Conley et al. (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 et al. (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 et al., 2016; Katz & Davison, 2014; Lipson et al., 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 effectiveness (Cimini & Rivero, 2018; Conley et al., 2015; Lattie et al., 2019).

Several reviews of individual-level mental health interventions note huge inconsistencies in how 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. We 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 well-being 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 et al., 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 et al., 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 et al., 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 et al., 2002; Swarbrick et al., 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 et al., 2000; Dubovi & Sawyer, 2018; Heys & Wawrzynski, 2013; Newton et al., 2010; Sawyer et al., 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 et al., 2012; Ramchand et al., 2017; Webel et al., 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 noncollege 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 et al., 2017). There is some evidence that peer counseling enhances social functioning, coping, and engagement with care (Chinman et al., 2014; Landers & Zhou, 2011). Other research, however, has found little or no evidence of positive effects on hospitalization, overall symptoms, or satisfaction with services (Lloyd-Evans et al., 2014; Min et al., 2007; Sledge et al., 2011).

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 UK 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 et al., 2014).

As with peer health educators, there is more evidence for beneficial impact on those trained to provide peer support (Bernecker et al., 2020; Hatcher et al., 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 well-being 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. Nonclinical 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, well-being, 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 et al., 2015; Fries-Britt, 1998; Guiffrida, 2003; Harper & Quaye, 2007; Museus, 2008; Nagasawa & Wong, 1999; Pitcher et al., 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, gay-straight alliances are associated with less substance abuse, depression, and psychological distress and fewer suicide attempts (Davis et al., 2014; Goodenow et al., 2006; Heck et al., 2013; Poteat et al., 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 et al., 2012; Pratt et al., 2000). An RCT showed that positive impacts on loneliness and 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 et al., 2006). Also evaluated with RCTs, it has showed clear efficacy in reducing risk factors, eating disorder symptoms, functional impairment, and future eating disorder onset over a 3-year follow-up (Becker et al., 2005; Becker et al., 2008; Halliwell & Diedrichs, 2014; Matusek et al., 2004; Mitchell et al., 2007; Stice et al., 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 et al., 2011, 2013). Benefits were experienced by African American, Asian American, European American, and Hispanic female college students, regardless of participant-facilitator ethnic minority status match (Stice et al., 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 well-being. They aim to establish meaningful relationships that persist beyond the group and enhance well-being by allowing students to both provide and receive support (Hogan et al., 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). 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 effectiveness 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 et al., 2006) and showed reduced depression relative to patients in typical group therapy (Pfeiffer et al., 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 et al., 2009; Hope & Smith-Adcock, 2015; Mattanah et al., 2015), though more work is needed to understand parental involvement and influence on college students (Harper et al., 2012; Kiyama & Harper, 2018; Wartman & Savage, 2008; Wolf et al., 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 et al., 2019). Families are generally seen as outside the purview of colleges (Kiyama & Harper, 2018). We were 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 (Diamond et al., 2010; Hooven et al., 2012; Pineda & Dadds, 2013; Wharff et al., 2012).

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 Students of Color (Crockett et al., 2007; Makomenaw, 2014; Nuñez & Kim, 2012; Strayhorn, 2010; Torres & Solberg, 2001; Torres et al., 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 et al., 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 et al., 2021). They serve as role models and sources of information, advice, practical help, and emotional support (Zimmerman et al., 2005). Students themselves focus on teachers and teaching practices when asked what can be done to support student well-being, emphasizing the importance of approachability, empathy, and communication skills (Baik et al., 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 et al., 2003; Wyn et al., 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 natural¹ 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 et al., 2016), via enhanced self-worth that reduced psychological distress (Hurd et al., 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 well-being among graduate students, and, once again, this is particularly true for students with minoritized identities (Allen et al., 2020;

¹Identified by the mentee, not assigned

Becerra et al., 2020; Charles et al., 2021; Goldberg et al., 2019; Hazell et al., 2020; Hyun et al., 2006; Jones-White et al., 2020; Posselt, 2021; Ryan et al., 2021; Tuma et al., 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 Students of Color 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 et al., 2011; Dubois et al., 2002; McQuillin et al., 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 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 it through microaggressions and discrimination (Goldberg et al., 2019; Knutson et al., 2021; Nolan et al., 2018; Smith et al., 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 et al., 2013; Nadal et al., 2011; Platt & Lenzen, 2013), immigration status (Nadal et al., 2014), disability (Keller & Galgay, 2010), religious affiliation (Nadal, Issa, et al., 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 by a range of players (including health and counseling professionals) in higher education settings. For example, research documents that gender minority college students are “tokenized, misgendered, outed, and invalidated by faculty members throughout their academic day” (Knutson et al., 2021, 7; Matsuno, 2019). Such treatment definitively harms mental health (Blume et al., 2012; Hwang & Goto, 2008; Keels et al., 2017; Nadal, Rivera, & Corpus, 2010; Pieterse et al., 2010; Torres et al., 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 et al., 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 et al., 2002; Poynter & Tubbs, 2007; Woodford, Kolb, et al., 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 et al., 2013; Johns et al., 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 et al., 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 et al., 2009; Sue et al., 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 et al., 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 et al. (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 et al., 1984; Holmes et al., 1984; Lakey & Lutz, 1996; Monti, 1979, 1980; Stravynski et al., 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 et al., 2018). 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 (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 et al., 2009; Osterman, 2000; Pittman & Richmond, 2008; Shochet et al., 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 et al., 2016; Hagerty et al., 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 et al., 2013; Hagerty et al., 1996; Pittman & Richmond, 2008). School belonging enhances educational outcomes for adolescents and young adults (Cham et al., 2014; Eccles & Roeser, 2003; Hughes et al., 2015; Hurtado & Ponjuan, 2005; Kember et al., 2001; Tovar et al., 2009), increasing student engagement, academic motivation and self-efficacy, and academic achievement (Cham et al., 2014; Eccles & Roeser, 2003; Freeman et al., 2007; Ostrove et al., 2011; Roeser et al., 1996; Zumbrunn et al.,

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 et al., 2019; Stephens et al., 2014; Walton et al., 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 well-done RCT studies (Brady et al., 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 well-being 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 well-being (Brady et al., 2020). The intervention eliminated Black-White differences in psychological well-being 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 postcollege. 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 et al., 2019). For example, *Jedi Public Health* 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, 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, 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, homophobia, and transphobia (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 et al., 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, may be most effective among these populations (Graham & McClain, 2019; Nicolazzo et al., 2017; Sokol & Fisher, 2016, e1). As colleges become increasingly diverse with regard to gender, race, ethnicity, generational status, ability status, and sexual orientation (Espinosa et al., 2019; Smith, 2015), 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 (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

We 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, we 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 h. Students (particularly resident advisors [RAs]), faculty, staff, and coaches are trained as gatekeepers in higher education.²

GKT impact studies commonly consider trained gatekeepers only (e.g., like peer health education studies) (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). 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 GKTs' impacts within the general student population (Lipson, 2014). However, at least one study (summarized below) measured these effects since (Lipson et al., 2014).

²GKTs 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 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).

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). This pattern aligns with recent GKT investigations in college settings (e.g., Shannonhouse et al., 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 GKT program Question Persuade Refer (QPR) enhanced trainees' self-perceived ability to connect at-risk students with mental health services (Mitchell et al., 2013). Coleman et al. (2019) examined 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.

Relative to the aforementioned outcomes, few studies have evaluated gatekeeper skills. In this context, skills refer to expertise in GKT objectives as assessed by a person other than the trainee. A cohort study of university employees (faculty, staff, and coaches) and undergraduate RAs showed that QPR improved gatekeeper skills: merely 10% of participants met criteria for acceptable skills at baseline, whereas 54% met criteria post-GKT (Cross et al., 2010). Notably, however, these effects were measured immediately after training and likely represent the "best case scenario" (Cross et al., 2010, 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). To our knowledge, between publication of Lipson's (2014) comprehensive review and now, few campus-based GKT studies have evaluated gatekeeper skills. 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 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 item is "How likely is it that you would talk with someone you know about their feelings if you thought they needed help?" (Pearce et al., 2003, 5). From baseline to initial follow-up, GKT has been shown to increase behavioral intentions in three of four studies measuring this outcome (Indelicato et al., 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 population-level service utilization and well-being.

Only one college GKT study appears to have considered intervention effects within the target population. In the most comprehensive evaluation of a GKT program to date, 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 (preexisting 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 well-being in student communities" (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 population-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 & Albarracín, 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 well-being. 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, however, 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. Colleges invest time and resources into GKT implementation; to protect this investment, institutions could offer refresher sessions to preserve gatekeepers' knowledge and skills. For instance, RAs could meet regularly to discuss their experiences with mental health concerns in their residential communities.

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 US Preventive Services Task Force both recommend depression screening, specifically when linked to effective treatment options (Horowitz et al., 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 et al., 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, & Eisenberg, 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 et al., 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 et al., 2011; King et al., 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 Services Task Force, 2014; O'Connor et al., 2013; Zalsman et al., 2016).

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 et al., 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 Other Components

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 et al., 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 et al., 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 well-being (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; Ciffone, 2007; King et al., 2011; Schilling et al., 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, 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 et al., 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 distress symptoms among students after traumatic events (Kataoka et al., 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). Outreach at the scene of suicide, however, 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 et al., 2014; Newton et al., 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, 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 et al., 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' well-being (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 et al., 2006). Higher education institutions have created mental health-focused courses and incorporated class content related to student mental health (Conley, Travers, & Bryant, 2013; Riley & McWilliams, 2007). Mental health interventions that provide students skills training through routine curricula appear useful. Conley, Durlak, et al. (2013) reviewed universal promotion and prevention programs for beneficial effects on college students' social-emotional skills, self-perceptions, and emotional 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)" (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 ($M = 8.6$ h, $SD = 3.8$; $p = 0.004$). 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 et al., 2021; Wasson et al., 2016). Many include small, self-selecting samples that overrepresent women and students pursuing health-related degrees, raising questions about generalizability (Hood et al., 2021; Regehr et al., 2013; Wasson et al., 2016; Young et al., 2020; Yusufov 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 nonstatistically significant increase in mental health wellness behaviors (Becker et al., 2008). A mandatory Health Enhancement Course (eight lectures + six 2-h 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 et al., 2009). A mandatory leadership course on student well-being enhanced pre-to-post connectedness, hope, and general positive youth development qualities (Shek et al., 2012; Shek et al., 2013). Brief lectures integrated in a medical school curriculum were associated with stress reduction (Bughi et al., 2006). However, consistent research conclusions remain elusive due to high attrition (e.g., Bughi et al., 2006) 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 well-being and stress management (Conley,

Travers, & Bryant, 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 et al., 2013). A growing number of colleges are offering courses on positive psychology with encouraging results (Hood et al., 2021; Oades et al., 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 well-being 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 well-being 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 et al., 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 et al., 2018) and psychological well-being 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 et al., 2014; Cross & Angelo, 1988; Murphy & Destin, 2016). Shiralkar et al. (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 well-being, without declines in academic performance, among medical students given a pass/fail grading system versus a multi-interval grading system (Bloodgood et al., 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 et al., 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 teaching.” Current evidence remains “scarce, contradictory, and ultimately inconclusive” (Fernandez et al., 2016, 805).

Beyond changing curricula and practices to reduce stressors, schools and instructors have implemented pedagogical activities to enhance protective factors and support students’ mental well-being. Enhancing conditions for well-being 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 et al., 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).

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 distress, responding to crises, and fostering well-being 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 et al., 2000; Harper, 2012; Ladson-Billings & Tate, 1995; Ladson-Billings, 2005; O’Connell et al., 2009; Richard et al., 2011, 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 et al., 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 et al., 2019).

Evidence suggests institutional transformation, rather than isolated interventions, is the most promising path to enhancing the health of members (Eckel & Kezar, 2003; Hawe et al., 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 et al., 2017), changing institutions to promote mental health, prevent mental illness, and reduce levels of distress among students is essential and financially advantageous (Eisenberg, Golberstein, & Hunt, 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 we review the evidence regarding institutional opportunities – through the physical environment, policies, public safety investments, 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 et al., 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 et al., 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 et al., 1980). Those who are obstructed in their initially selected means generally do not seek alternatives and survive for decades (Daigle, 2005; Gunnell et al., 2007; O'Donnell et al., 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 well-being 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 et al., 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 et al., 2008). Issues of accessibility have been raised as important stressors impacting the lives of students with disabilities, gender minority students, and others (Goldberg et al., 2019; Nolan et al., 2018; Seelman, 2014, 2016). Efforts to enhance accessibility beyond ADA 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 pertaining to substance use, sexual assault, leaves of absence, financial aid, and diversity, equity, and inclusion (including protection from discrimination) can influence student mental health by shaping behavior (e.g., help-seeking and interpersonal harm) and improving campus climate (Goldberg et al., 2018; Rhodes et al., 2005; Schwartz & Davar, 2018; Streng & Kamimura, 2015; Woodford et al., 2018). Medical amnesty policies, for example, improve perceptions of campus climate (Martinez et al., 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 et al., 2018; Oster-Aaland & Eighmy, 2011; Oster-Aaland et al., 2011). Benefits, however, may

not be conferred equitably across race and gender (Carroll et al., 2020). Alcohol policies can foster student behavior that benefits mental health. At HBCUs, 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 et al., 2018; Dilip & Bates, 2021). Yet, detrimental aspects of these policies persist (Hoffmann & Mastrianni, 1992; Holland et al., 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-h 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 US 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 benefiting student health and well-being.

Diversity, Equity, and Inclusion Policies Policies pertaining to diversity, equity, and inclusion (DEI) are also relevant to student mental health. The presence of identity-support centers (i.e., women, multicultural, and LGBTQ centers), DEI strategic plans, a Chief Diversity Officer or lead DEI administrator, diversity enhancement policies, gender-neutral bathroom options, preferred name and pronoun policies for campus records, and inclusive nondiscrimination policies all appear to influence mental health (Elharake et al., 2019; Heck et al., 2011; Hurtado et al., 1999; Leon, 2014; Potat et al., 2012; Seelman, 2016). DEI efforts that are multilevel, multicomponent 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 et al., 2014; Gummadam et al., 2016; Hawe et al., 2004; Pittman & Richmond, 2008; Stebleton et al., 2014; Woodford, Han, et al., 2014). Their impact needs to be better studied.

The limited research on mental health effects of school DEI policies has largely focused on sexual and gender minority students. In qualitative studies, gender minority students stress the importance of inclusive school policies for their health and well-being and note valuing gender-inclusive restrooms, the ability to change one's name on campus records without legal name change, and nondiscrimination policies that are inclusive of gender identity (Goldberg et al., 2018, 2019; Pitcher et al., 2018; Sausa, 2005). Transgender 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 linked to better mental health (Gower et al., 2018; Woodford et al., 2015). The effects of gender-inclusive restrooms have not been formally evaluated, but higher rates of lifetime suicidal ideation have been reported among gender minorities who recall a lack of gender-inclusive restrooms during their college days (Seelman, 2016), and state bills that prevent people from accessing bathrooms consistent with their gender identity undermine their health (Reisner et al., 2015; Wang et al., 2016). Likewise, psychosocial impacts of policies allowing students to identify their name and pronouns on school records have not been evaluated, but chosen name use in multiple contexts, including school, is linked to reduced suicidal behavior among gender minority youth (Russell et al., 2018).

Policies that enumerate protections for sexual and gender minorities can improve school safety and benefit student mental health (Kull et al., 2016). For example, lesbian, gay, and bisexual college students experience fewer verbal threats at schools with sexual orientation-inclusive nondiscrimination policies versus not (Hong et al.,

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). 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; Hatzenbuehler & Keyes, 2013; Kosciw et al., 2014; Kull et al., 2016; O'Shaughnessy et al., 2004).

As DEI efforts continue to expand and vary across colleges and universities (Espinosa et al., 2016; Gagliardi et al., 2017), research is needed to identify causal pathways so that policy can be designed and employed to enhance student health and well-being. 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 well-being (Bellmore et al., 2004; Elharake et al., 2019; Graham, 2018; Graham et al., 2014; Juvonen et al., 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.

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 et al., 2009; Herbaut & Geven, 2020; Hossler et al., 2009; Nguyen et al., 2019; Page & Scott-Clayton, 2016). However, researchers should also investigate psychological effects given that financial stress taxes mental health (Adams et al., 2016; Cadaret & Bennett, 2019; Gonzales et al., 2013; Raza et al., 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 et al., 2020; Nora et al., 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 et al., 2013) and poses psychological burdens for college students (Dowd & Coury, 2006; Robb et al., 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 et al., 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 et al., 2002).

Public Safety Investments

College and university public safety policies and investments in policing are an almost entirely ignored aspect of how institutions of higher education shape student mental health. There is frequent student and police interaction around mental health (Bauer-Wolf, 2018; Margolis & Shtull, 2012) and robust evidence indicating that both direct and vicarious contacts with police pose a threat to mental health, especially for People of Color (Devlyder et al., 2018; Feldman, 2015; Geller et al., 2014; Nordberg et al., 2016, 2018; Smith Lee & Robinson, 2019). Specific policing budgets, policies, and practices (e.g., use of military-style armament; Bauman, 2014; McWilliams, 2020) are strikingly absent from guidelines, evidence reviews, and literature on opportunities to enhance student mental health (e.g., Cimini & Rivero, 2018; Jed Foundation, 2019; Kirsch et al., 2014; National Academies of Sciences Engineering & Medicine, 2021). Opportunities are there since over 90% of the 4-year institutions of higher education that have more than 2500 students employ their own campus law enforcement agency (Reaves, 2015).

There are many avenues through which campus police presence, numbers, and arms shape student mental health. Even in the absence of direct encounters, police can be a source of racialized aggression, arousing fear and psychological distress for Black students and other Students of Color in particular (Jenkins et al., 2020; Landers et al., 2011; Mbuba, 2010; Nordberg et al., 2018; Smith et al., 2007; Solorzano et al., 2016). Representative, generalizable research is needed, but this work must recognize racial and gender differences in attitudes toward and experiences with police (Mbuba, 2010; Nordberg et al., 2018). For example, college men express more distrust, fear, and stress regarding police encounters than women (Landers et al., 2011; Mbuba, 2010; Nordberg et al., 2018). In addition to mental health impacts of the local police climate, repeated exposure to nationally publicized police killings of unarmed Black men is traumatic for racially underrepresented college students and contributes to anxiety and fear regarding future police encounters (Campbell & Valera, 2020). PTSD symptoms have been documented among Black people who identify with victims and perceive these deadly encounters as racist and discriminatory (Aymer, 2016; Smith Lee & Robinson, 2019).

Perhaps in response to local and national exposures and negative perceptions of police, college students in mental health and substance use crises often avoid seeking assistance (Hollister et al., 2014), yet campus police are commonly among the first and primary responders to students experiencing such crises (Kase et al., 2016; Margolis & Shtull, 2012). Officers often determine whether a student is directed to support services, campus disciplinary processes, and/or the criminal justice system (Margolis & Shtull, 2012). A growing number of incidents of college police violence (murder, in more than one case) toward individuals experiencing mental health crises have received public attention (Bauer-Wolf, 2018; Harvard Law Review, 2016).

California trained campus law enforcement professionals to more effectively identify, assess, and respond to students in psychological distress (Kase et al., 2016). Participants largely reported that the 4-h Interactive Video Simulation Training (IVST) increased their likelihood and confidence to respond and refer (Kase et al., 2016). Programs to revise who responds to mental health crises or to better prepare police for these situations should be formally evaluated within higher education settings, as they've shown effectiveness elsewhere (Compton et al., 2008; Hails & Borum, 2003).

Other Institutional Interventions

Many other aspects of colleges – their finances, staffing, reward structures, hiring practices, 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 et al., 1998; Kezar, 2019; Kezar & Eckel, 2002; Mayhew et al., 2016; Milem et al., 2004, 2005; 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 (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 et al., 2006), suggesting complex relationships that are contingent on school sector (public vs. private). 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 well-being 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 (Abbafati 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 we 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).

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 Garrett 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 et al., 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 mental health services (Cooney & Shaefer, 2021; Department of Education, 2021).

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 et al., 2004; Hinshaw & Stier, 2008; Organ et al., 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 et al., 2020; Hatzenbuehler & Keyes, 2013; Perez-Brumer et al., 2015; Raifman et al., 2018). For example, living in states with more protective and less discriminatory laws for gender minorities is associated with reduced discrimination, victimization, psychological distress, mental health days, and lifetime suicide attempts among gender minority adults (Du Bois et al., 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 et al., 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 et al., 2017; Stein et al., 2012; Woodbridge et al., 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 et al., 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.

Summary of Intervention Evidence

Multilevel intervention is most effective for improving population health (Sallis et al., 2008). Our 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. Supervised 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; school policies; and public safety and policing practices. Our 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.

Recommendations for Strengthening the Use and Availability of Research

Having reviewed the evidence on what works to support student mental health, we turn to how to improve the use of evidence to inform practice. When considering that question, we can categorize the opportunities for improvement under two main themes: *improving the use of available research and evidence, and increasing the supply of high-quality, useful research*. We can think of high-quality evidence as a product or service (Neuhoff et al., 2015); as in the market for any product or service, there is a demand and a supply side that mutually reinforce each other. From the demand and consumer side, if we improve the use of available research – i.e., the enthusiasm, skill, and support by which decision-makers consume research – that

can be motivating to researchers and other stakeholders to increase the supply of such research. Similarly, if we increase the supply of high-quality and useful research, decision-makers will be more motivated to use research in guiding their decisions. We conclude by offering a series of recommendations, based on our review and our knowledge of the field, about priorities for improving the use of and the supply of high-quality evidence.

Recommendation #1 (Improving the Use of Research): Develop and Maintain a Centralized and Easily Accessible Database of Evidence

The review in this chapter reveals that there is already a rich base of evidence that can and should be used to inform practice. This evidence base, however, is spread across many different disciplines (e.g., education, psychology, public health) and contains a wide variety of strategies and evidence types. Thus, it is challenging for decision-makers to make sense of it and apply it to their needs and questions. Not surprisingly in light of these challenges, the evidence is only used sporadically and haphazardly, as far as we can tell from our long-standing discussions and partnerships with practitioners, administrators, and other stakeholders.

An important step to address this problem is to synthesize available evidence from academic reports and other sources and to make this information easily accessible. This type of resource is typically referred to as a registry, repository, or clearinghouse for evidence and best practices. A registry focused on college student mental health does not yet exist, but there are many registries in related areas from which we can learn.

A notable example is Blueprints Programs for Healthy Youth Development (www.blueprintsprograms.org). Blueprints reviews a wide range of social, educational, and health-related programs for children, adolescents, and young adults. It is known for its high standards of evidence; to be rated as a model program, a program must have multiple randomized trials with clear evidence of positive effects. Out of more than 1500 programs reviewed, only 18 have been rated as model and only an additional 80 as promising, meaning that over 90% of reviewed programs do not have sufficient evidence to be included in the registry.

If we were to impose this type of standard to the area of student mental health, there would be hardly any programs in the registry. In fact, only a few programs focused on college student mental health have been included in Blueprints to date. Therefore, a registry that is more lenient in its inclusion criteria is needed initially to provide a thorough picture of the current state of evidence. It will be important for this registry to differentiate clearly between levels of evidence, highlighting those programs that attain higher standards.

Another useful example is CollegeAIM, a registry focused on alcohol interventions in postsecondary settings. This registry rates programs and policies in terms of evidence of effectiveness and cost of implementation. It is sponsored by NIAAA and was created by a panel of research experts. The registry differentiates between

individual-level and environment-level strategies, and it includes over 60 interventions.

Developing and maintaining a useful registry of evidence for college student mental health will require overcoming several significant challenges. First, distilling the large and diverse data and evidence requires considerable time, resources, and expertise. And because the evidence is evolving steadily (and even rapidly in some areas such as digital health programs), there must be a sustained, continuous effort to update the information. Thus, while the workload and expertise can and should be distributed across many experts and partner organizations, there will need to be a core group of people who spearhead the effort and maintain their involvement over time. This will require some funding for the effort, although we believe it would be a modest amount relative to the value of such a registry.

Second, the registry must secure the trust of relevant communities and stakeholders who will use the information, such as campus leaders and administrators. This means the registry creators must have a high level of expertise related to data and program evaluation, and they must avoid potential conflicts of interest or favoritism toward particular stakeholders or disciplinary perspectives.

Third, as mentioned previously, the registry should uphold and promote high standards of evidence but not to the point at which very few programs are included. By including programs with less evidence, the registry has the potential to highlight gaps in the evidence and push the field toward higher levels of confidence in what works. Relatedly, the registry will be too sparse if it only includes programs that are ready for dissemination, as Blueprints does. Many of the most effective interventions that we found in our review have not yet been packaged for wider dissemination. That process often requires a purveyor organization that supports training and quality assurance (Neuhoff et al., 2017). An inclusive registry has the potential to highlight effective programs that require additional support to scale up.

Fourth, the registry should ideally provide both information about which specific programs are most effective and broader information about which categories of programs are generally more effective than others. For example, in our review of individual interventions, we saw that skill-based programs were generally much more effective than purely psychoeducational programs, but there may still be a small number of effective programs in the latter category. Thus, the registry should provide both a general sense of the most effective strategies as well as specific information about the effectiveness of programs within each type of strategy.

Lastly, the registry should address diversity and equity. In particular, the registry should provide the demographic and socioeconomic characteristics of the students and the contextual characteristics of institutions (e.g., minority serving institutions, community colleges, etc.), in evaluation studies to date, and highlight gaps and opportunities to extend the evidence to more diverse populations and settings. In addition, the registry should help clarify which components of interventions are core ingredients that are necessary to replicate the effectiveness from previous evaluations and which components are potentially adaptable for culture and context.

Recommendation #2 (Improving the Use of Research): Provide Active Support for Decision-Makers

An evidence registry can be even more impactful if it is supplemented with active support for the decision-making and implementation process. This support could elevate the registry from a passive source of information to an interactive, responsive resource. Specifically, there would ideally be a panel of experts or coaches who are available to discuss with decision-makers their needs and how to use the information in the registry. This same panel, or another panel, would then be available to help troubleshoot during and after the process of implementing the programs that are selected.

In addition, there could be a peer component to provide additional guidance and motivation to users of the registry. That could take the form of a database of contacts who have previously implemented programs in the registry or a learning collaborative, in which cohorts of campus decision-makers participate alongside each other in the process of using the registry to select and implement programs. Learning collaboratives have been used successfully to address student mental health in the National College Depression Partnership (Chung et al., 2011), for example.

Organizations such as the Jed Foundation and the Steve Fund already serve the role of helping campus administrators understand and apply research evidence to their needs in the area of student mental health. In parallel, organizations such as Active Minds guide student advocacy for the adoption of evidence-based practices. Thus, these organizations would ideally be involved in the efforts to provide support for using the information in the registry. The presence of a comprehensive and updated registry could greatly enhance these organizations' ongoing efforts to provide technical assistance to campuses.

The challenges in providing active support around the use of the registry are similar to those noted for the creation and maintenance of the registry. Funding will be required for the time and expertise of those who provide support around decision-making using the registry. And those experts or coaches will need to maintain a high level of credibility and trust among campus stakeholders, by avoiding conflicts of interests and other potential biases.

Recommendation #3 (Improving the Use of Research): Enhance Incentives for Using Evidence to Inform Practices

University leaders and other funders of college services and programs should consider requirements to use evidence-based programs or else conduct a rigorous evaluation in tandem with promising but unproven programs. Families First and MIECHV are examples of federal policy with this type of approach in the contexts of child welfare and home visiting programs, respectively. Each of those policies is affiliated with a registry of evidence-based programs. Only those programs in the registries can be funded through the policy, except that a portion of funds under MIECHV can go toward promising but unproven programs if the implementation is

accompanied by rigorous evaluation. This is a tiered approach to evidence-based policy-making that prioritizes programs with the highest evidence while also promoting innovation and new knowledge about other programs (Baron, 2018).

This type of policy could be enacted through national policies and organizations as well as state and regional initiatives. As an example of the latter, the University of North Carolina system has set up a system for implementing new academic programs with an emphasis on evidence and evaluation, the [Student Success Innovation Lab](#). This initiative funds promising programs, accompanied by rigorous evaluations, and then shares results across the system and supports the scaling of the most beneficial programs.

These types of initiatives would ideally be complemented by a bottom-up approach, whereby individual colleges and their stakeholders, such as presidents, provosts, deans, and counseling and health center directors, make their own decisions to focus on only implementing programs with a certain standard of evidence or promising programs accompanied by rigorous evaluations. This type of commitment could be facilitated and promoted through regional and national networks and organizations. The buy-in and engagement may be greater if campus stakeholders arrive at this decision through their own process, rather than only being encouraged or mandated through higher-level policies.

Balancing high standards of evidence with flexibility is crucial in the context of funding policies, just as it is in the design and support of the registry. An overly rigid focus on programs with high levels of evidence runs the risk of stifling innovation and failing to meet the needs of schools and student populations for whom the current evidence is not sufficiently relevant. As noted above, one key aspect of the flexibility is to provide funding for new and promising programs as long as they are evaluated rigorously. In addition, there needs to be clear guidelines about how evidence-based programs can be adapted for local context. This requires an understanding of the distinction between core components of the programs that must be maintained in order to achieve the expected impacts, as opposed to features that can be adapted. Substantial adaptations of evidence-based programs will need to be evaluated for their outcomes.

Recommendation #4 (Increase the Supply of Evidence): Invest in Innovative Research to Address Major Gaps

Our review has highlighted several important gaps regarding evidence on the effectiveness of interventions to address student mental health. Each of these gaps will be important to address in order to move toward more evidence-informed and impactful strategies. Here, we highlight specific areas that will be especially important to address, and we offer some initial ideas for the types of studies that could be most helpful.

Reach and Engagement of Students at Scale

The overall health impact of population-level interventions is the reach—the number of people who participate or are exposed to the intervention – multiplied by the per-person effectiveness among those who are reached. Whereas evaluation research often focuses on the effectiveness among those who are reached, achieving a wide reach is often the challenge that campuses 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. Furthermore, at the intersection of reach and effectiveness is engagement, which can be thought as the quantity and quality of participation or exposure to an intervention, among those who are reached at all. Thus, research and evaluation on student mental health need to 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. Continuing with the example of digital interventions, we see an opportunity for expanding reach and increasing engagement by leveraging the in-person resources that students have in campus communities. With so many options for digital media, it is difficult for beneficial programs to stand out. Campus personnel such as resident advisors, academic advisors, and health professionals could help promote engagement with specific digital programs that have strong evidence. These strategies need to be evaluated carefully and the resulting information should be shared widely.

More Rigorous Evaluation of Community-Level and Organization-Level Interventions

In addition to improving our understanding of reach and engagement, there is a broader need to increase the rigor of evidence regarding the effectiveness of public health strategies for mental health in postsecondary settings. As we saw in our review of community-level and institutional-level interventions, the evidence is especially uncertain in these areas. This is understandable to some degree, because it is difficult to conduct rigorous evaluations of these types of 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 a large number of colleges or at least a large number of relevant units such as schools or residences within campuses. A simple pre-post analysis of outcomes for one campus is unlikely to be credible unless the changes in outcomes are striking and clearly specific to the intervention targets. Given these challenges, there needs to be a concerted effort by researchers and colleges together to conduct large-scale evaluations that include reasonable control groups. This will require considerable efforts and funds in some cases, but it is the only path toward a more evidence-informed approach to public health strategies for student mental health.

Evaluation of Practices and Policies, Not Just Programs and Services

As part of the move toward more complete and rigorous evidence regarding population-level interventions, evaluations should focus on not only programs but

also practices and policies that affect student mental health. Our review found perhaps the smallest amount of evidence in that area. Because policies and practices typically operate at the college level, in most cases evaluations will need to compare outcomes over time across a large number of campuses. The feasibility of such evaluations is enhanced by the presence of population-level survey studies such as the ACHA-NCHA and the Healthy Minds Study, particularly for institutions that participate repeatedly in these studies over time. There will also need to be new data collection and additional coordination between these national surveys and evaluation efforts.

Standardization of Outcome Measures

Greater consistency in outcome measures across evaluations will allow for more meaningful comparisons across the interventions that college decision-makers are considering. Pursuing and evaluating interventions for both academic and mental health benefits may help. The registry that we have previously described can also assist this standardization by compiling and sharing information about the strengths and limitations of outcome measures in evaluations to date. As noted previously, however, there must be enough flexibility to accommodate the particular contexts of each evaluation and the corresponding schools and student populations.

Cultural Adaptation and Core Components

To achieve an optimal balance of consistency and flexibility in the application of evidence to campus decision-making, the research and evaluation field needs to improve the understanding of which features of intervention are essential for effectiveness (core components) and which can be potentially adapted for local context without losing (and perhaps gaining) effectiveness (adaptable features). As noted above, a registry of evidence can highlight the interventions for which we do and do not have this type of information. The gaps can be filled through a combination of systematic reviews (which identify features consistently present in effective interventions) and primary studies that test multiple variations of interventions.

Implementation and Sustainability Research

One final priority for research and evaluation is to increase attention to strategies for implementing and sustaining interventions in the context of student mental health. This type of research would include descriptive analyses of factors that facilitate or impede the uptake, high-quality implementation, and long-term sustainment of programs, policies, and practices. The research would also include comparative trials of alternative strategies to support implementation and sustainment, such as learning collaboratives, facilitators providing technical assistance, and alternative training models. There have been very few examples of this research to date with a focus on student mental health interventions.

Recommendation #5 (Both Improve the Use of Research and Increase the Availability): Develop and Strengthen Networks of Practitioners and Researchers

A crosscutting theme of our recommendations is the importance of collaborations across research and practice for student mental health. To elaborate on this theme, we recommend the strengthening of regional and national networks bringing together college practitioners and researchers. These networks would ideally have a few key features, as described below.

First, the registry of evidence described earlier should involve partnerships with colleges that contribute evidence to the registry. A key limitation of most registries is that they generally only include results from published articles and reports. This approach might help ensure a minimal level of quality and rigor for the evaluations, but it probably misses a large amount of potential evidence that could be useful. In the context of student mental health, colleges frequently conduct internal evaluations of their programs without any attempt or intention to publish the results. Ideally a registry would partner with colleges to collect and share evaluation results widely.

Second, these networks should integrate and collaborate across fields of research and areas of practice. Relevant fields of research include higher education, public health, sociology, and psychology among others, and relevant areas of practice include counseling, health centers, health promotion, academic affairs, residence life, financial aid, multicultural centers, and LGBTQ centers. These research fields have traditionally operated in separate silos, as noted in our review of evidence, and the areas of practice are also somewhat fragmented at many schools. A more integrated network is necessary to leverage fully the strength of collaborations between research and practice, which will yield richer and more relevant evaluation data in the effort to improve the evidence base guiding practice.

Third, stronger research-practice networks are needed to facilitate large-scale evaluations of programs, practices, and policies. As noted previously, multicampus evaluations are often needed to understand the effectiveness of community-level and institutional-level interventions. Current networks, such as Healthy Minds, CCMH, and ACHA/NCHA, are largely focused on descriptive data. There is a need to build on these initiatives with networks that focus on program implementation and evaluation. In our own experience, we have found that it is challenging to put together a multicampus randomized trial, as we and our collaborators have done in the context of a gatekeeper program (Lipson et al., 2014), suicide prevention screening (King et al., 2015), and digital mental health therapy for depression, anxiety, and eating disorders (Fitzsimmons-Craft et al., 2021). Each of these projects has required extensive effort to recruit and coordinate colleges. A robust research-practice network of colleges could make it significantly easier to conduct these types of studies.

Summary/Conclusion

Mental health problems among college students are prevalent, increasing, and inequitably burdensome. There is a rich, dispersed evidence base indicating important opportunities for colleges and universities to intervene at every level of the socioecological model. And yet, there is also significant need to improve the evidence base. Enhancing the evidence base and its use is in the best interest of students, institutions, and society. Doing so with *all* students in mind is essential for reducing inequities in mental health. The task is urgent due to long-standing rising trends in symptoms and service use and the likelihood of further worsening as we emerge from the global pandemic (Ettman et al., 2020; Galea et al., 2020; Liu et al., 2020; Rudenstine et al., 2021). Given the link between mental health and academics, identifying and implementing effective interventions to enhance mental health may be an underutilized strategy for eliminating thus far intractable academic inequities (Espinosa et al., 2019). In conclusion, better addressing student mental health in higher education is an area ripe for research, innovation, and action. A more strategic, evidence-informed approach is needed to make the best use of limited funding.

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