

Psychological Wellness in College Students: An Examination of Mobile Technology Services  
for Students in Emotional Distress

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### **Abstract**

As the occurrence of psychological wellness concerns in the college student population continues its upward trajectory, colleges and universities are being presented with transformational new technologies that can bolster the availability of services and accommodations to the student body. By examining the current trends in psychological wellness assistance on college campuses, and by exploring the implications of incorporating a technology based mental healthcare system to supplement current programs, institutions of higher education have a unique opportunity to expand their reach in order to provide assistance to students who do not seek out psychological help when needed. This paper explores the fundamental issues that colleges and universities face as they consider the implementation of technology based applications, and examines the best practices of institutions that have already begun to incorporate this technology into its program offerings.

## Introduction

Psychological wellness in the college student population has been a topic of increasing concern over the past several decades. With college students being subjected to a wide variety of new experiences and responsibilities, stress and anxiety levels in this population are seeing a steady increase (Kruisselbrink, 2013). If left untreated, symptoms of stress, anxiety, and depression can lead to more complicated mental health issues (Crady, 2005). Research has shown that the majority of students who are in need of mental health services do not seek help (National Alliance on Mental Illness, 2018). Consequently, there is a need for institutions of higher education to examine their best practices in order to provide a more comprehensive mental healthcare program that reaches the entire student body, not just those that are in danger and in need of treatment. By exploring technology based methods for the prevention and treatment of emotional and psychological issues, institutions of higher education may be able to increase student satisfaction, increase retention rates, and prevent emotional crisis situations from occurring on campus.

This report will explore the application of technology based services utilizing devices that are accessible to the entire student body in order to expedite access to emotional wellness services for students in immediate need. By promoting self-help skills for the general student population via technology, this approach could alleviate the need for more structured mental health services down the road. The implications for these findings can be far reaching, as they affect many aspects of the student's college experience, including academic success, retention, graduation rate, and overall student safety. In an effort to examine the current situation and offer suggestions for best practice, the following research questions will be explored:

1. What are the current trends in emotional wellness programs at institutions of higher education?
2. What population of students would benefit from the introduction of an emotional wellness program that utilizes mobile technology?
3. What kind of mobile technology is currently being used at institutions of higher education to supplement mental healthcare services on campus?
4. What benefits would a college campus see by implementing technology based healthcare services on campus?
5. What are the social, legal, and financial implications of incorporating a technology based emotional wellness program on a college campus?

## **Literature Review**

### ***Current Trends in Emotional Wellness Programs & Related Research***

Higher education has undergone an evolution in regard to the programs and accommodations for psychological wellness that are being made available to the increasingly diverse student body. Motivated in part by the Civil Rights Act of 1964, colleges and universities were inspired to expand their efforts to attract and enroll a population of students who had previously faced obstacles in the college admissions process (Bastedo, Altbach, & Gumport, 2011). In addition to the increased efforts to attract a more diverse student body, and in conjunction with the regulations of the Rehabilitation Act of 1973 (Section 504) and of the Americans with Disabilities Act of 1990 (Title II), colleges began to focus more effort on the provision of accommodations for the disabled (Adams, Blumenfeld, Castaneda, Hackman, &

Zuniga, 2013). Higher education institutions across the nation now boast the most diverse population of students ever enrolled on college campuses (Debard, 2004). Consequently, due to the increased diversity of the student body, college and university administrators are faced with the challenge of ensuring that this new population of students is given the opportunity to be successful (Czyz, Horwitz, Eisenberg, Kramer, & King, 2013).

Statistics indicate that approximately 11% of the college student population falls into the category of having a disability (National Center for Education Statistics, 2016). Correspondingly, students who have an emotional or psychological disability account for roughly 15% of the population of students with disabilities (National Center for Education Statistics, 2016). According to the National Council on Disabilities, only 20% of students with emotional disabilities enroll in college programs after high school graduation, with a mere 34% of disabled students obtaining a bachelor's degree in less than 8 years (National Council on Disabilities, 2015). While high schools and college admissions offices have made improvements in enrolling students with psychological wellness concerns, efforts to ensure the success of this population of students have had mixed results (Henriques, 2014). According to a study led by University of Michigan researchers, there has been great variation in the rates of mental health concerns and treatment utilization across college campuses nationwide (Lipson, Gaddis, Heinze, Beck, & Eisenberg, 2015). The data results suggest that factors such as campus enrollment size, the percentage of residential students versus non-residential students, and admissions selectivity are correlated to the rate at which students utilize campus mental health services (Lipson et al., 2015). While having a correlation does not necessarily point to causation, this information can be useful to administrators who develop, coordinate, and advocate for services on those campuses that are likely to attract a student body in need of psychological accommodations.

Due to the increase of students with psychological concerns enrolling in post-secondary education in recent decades, colleges leaders and their administration offices have worked to develop and provide support programs and accommodations that specifically cater to those with emotional concerns, a subpopulation of students that campuses have struggled to retain (Hunt, Watkins, & Eisenberg, 2012; Lipson et al., 2015). Common campus accommodations for this population of students include academic support services such as preferential seating, assignment of an assistant, access to class notes, extended test taking time, and exams administered in quiet, non-distracting locations (National Alliance on Mental Illness, 2019). In addition to classroom accommodations, students diagnosed with psychological wellness issues can typically obtain counseling at campus health service centers where specialists can assist the student with concerns about anxiety, stress, and make referrals to outside practitioners who can provide further support and medication management if it is determined to be necessary (National Alliance on Mental Illness, 2019).

Although institutions of higher education have made great strides towards the development of accommodations for students in need of assistance, research suggests that many of the discouraging statistics on retention and success for this student population is the result of the students' lack of knowledge about the availability of accommodations and support services on campus (National Alliance on Mental Illness, 2018). Despite the efforts of the college campus to reach out to students of concern, studies have reported that many students do not follow through with obtaining services due to the stigma attached to having an emotional disability, a phenomenon that has become known as the "help-negation effect" (Czyz et al., 2013). Research on the topic of suicidality among college students calls attention to one of the tragic outcomes of help-negation, showing that 80% of those students who died by suicide never sought help for their psychological

concerns (Gallagher, 2014). Despite the growing trend towards acceptance of individuals with disabilities over the past several decades, the fear of stigmatization is still a very real concern to students with psychological wellness concerns, especially in the late adolescent and emerging adulthood populations who are struggling to form their own identities (Henriques, 2014; Eisenberg, Hunt, & Speer, 2012). This has caused great concern among healthcare professionals and college administrators, as it is difficult to treat individuals who need help unless they seek it. Research trends suggest that there has been an increase in emotional and psychological issues for students of traditional college age due to the significant changes that take place during this period of time, such as increased level of stress, living away from home, more responsibilities, and academic pressure to achieve (Kruisselbrink, 2013; Reilly, 2018). Additionally, students who are entering college may not be aware of their own emotional fragility until it becomes apparent when they are put under the additional stresses that college life introduces (Eisenberg et al., 2012). Consequently, institutions of higher education are faced with the difficult task of determining how to best reach the target population of students who are aware of their own emotional wellness concerns while also reaching students who are not yet experiencing emotional issues.

### ***Target Student Population***

College campuses are currently struggling to meet the rising mental health needs of the student body who are reporting the highest rates of depression, anxiety, and hopelessness in recent decades (Meng, Hussain, Mohr, Czerwinski & Zhang, 2018; Bergen-Cico, Possemato, & Cheon, 2013). As reported in the National College Health Assessment, over 66% of college students felt hopeless within the past year (American College Health Association, 2017). Longitudinal data collected by a team of researchers at several universities found a strong correlation between the

increase in mood disorders and major depressive episodes of young adults (aged 18-25) and the rise of social media over the past decade (Twenge, Cooper, Joiner, Duffy, & Binau, 2019). The results of this large study indicate that from 2008 to 2017 the rate of serious psychological distress among 18-25 year olds increased by an overwhelming 71% (Twenge et al., 2019). The researchers of this study attribute this trend primarily to cohort effect, with students born in the millennial generation being most effected by cultural changes over the past decade such as the rise of social media and smartphone usage (Twenge et al., 2019). Psychological wellness concerns such as hopelessness and depression have also been linked to other unhealthy behaviors in the college age population such as alcohol abuse, substance abuse, self-injury, and suicidal ideation (Meng et al., 2018).

As institutions of higher education strive to meet the needs of the population of students who have reported emotional wellness disabilities, they also are faced with the question of how to best serve the population of students who have not self-identified as to having an emotional wellness concern. As seen in the infographic below (figure 1), despite the overwhelming majority of students who indicate that they have experienced a mental health crisis in college, only 62% of the student body knows how to access the mental health accommodations that are available to them (National Alliance on Mental Illness, 2018). Even more discouraging is the indication that

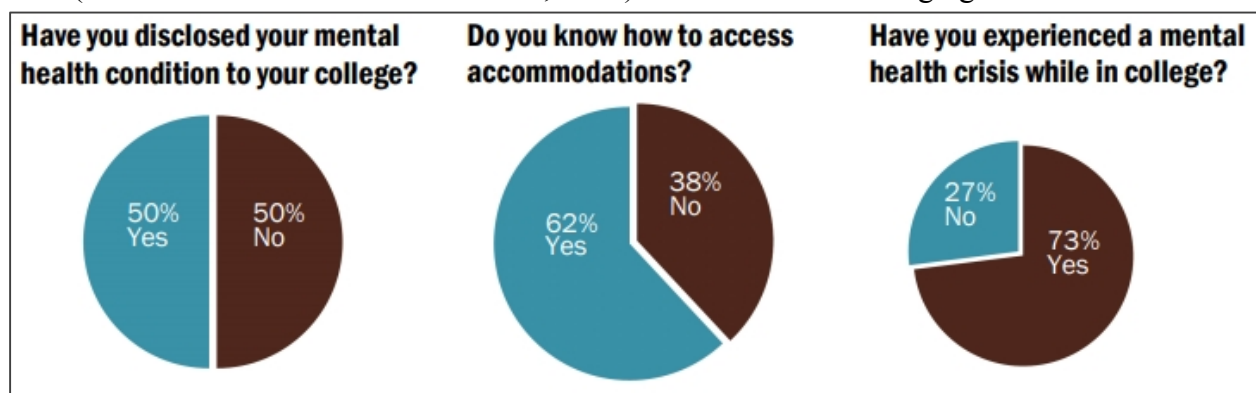


Figure 1: Source: National Alliance on Mental Illness Infographic



only 50% of students who have an emotional or psychological disorder disclose this information to the school (National Alliance on Mental Illness, 2018).

In order for higher education leaders to best serve their student body, an understanding of the fundamental issues that are preventing students from reporting their mental health concerns is essential. While many somatic health concerns have relatively straightforward methods of resolution, such as treating the common cold or influenza, psychological concerns pose a more complex set of factors to take into consideration, as issues of psychological wellness are often difficult to diagnose and include many conditions that are co-morbid (Bener, Al-Kazaz, Ftouni, Al-Harthy, & Dafeeah, 2013). Figure 2 illustrates an example of how psychological concerns can overlap with other emotional wellness issues, showing high rates of comorbidity across stress, anxiety, depression, and somatization

issues (Bener et al., 2013).

Somatization, or somatic symptom disorder (SSD) as listed in the latest issue of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association,

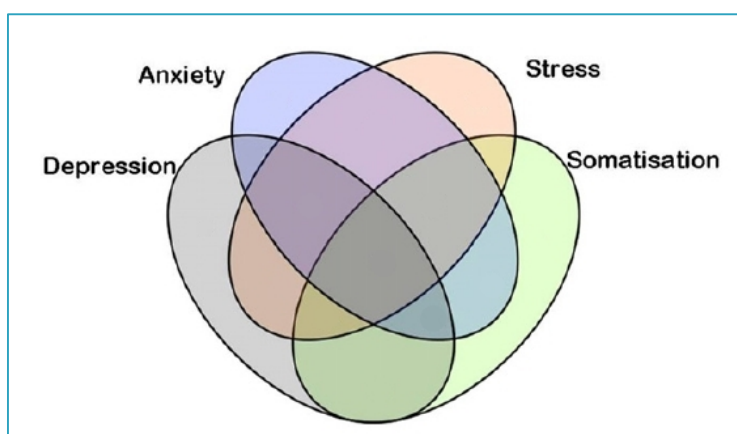


Figure 2: Source: Bener et al., 2013

2013), is the physical manifestation of emotional concerns that cannot be attributed to a recognized medical condition, such as an individual with anxiety reporting the presence of stomach pain (American Psychiatric Association, 2013). Studies have shown that individuals with psychological concerns frequently report somatic complaints when their emotional concerns, unbeknownst to them, are the actual source of distress (Bener et al., 2013; Henningsen, Zimmermann, & Sattel, 2003). The physical ailment that the individual reports is real despite the

lack of an obvious cause, which can further add to the psychological issues at hand when solutions are not offered (Henningsen et al., 2003). As seen in the chart below, there is a wide variety of psychological afflictions encompassed within the disability category of emotional disturbance (National Institute of Mental Health, 2018; National Alliance of Mental Illness, 2018), all of which have the potential to co-occur with somatic symptom disorder complaints (Bener et al., 2013).

<i>Emotional Disturbances</i>	<i>Presenting symptoms</i>
Schizophrenia	Hallucinations and delusions, causes profound disruption in daily activities of those afflicted or those around them.
Borderline Personality Disorder	Extreme emotions, self-injury, depression and/or suicidality, reckless actions, irrational fears of rejection.
Bipolar Disorder	Manic-depressive illness, dramatic mood swings, severe changes in energy and disposition.
Depression	Feelings of sadness, hopelessness, effects daily life, lasts for weeks or months on end in cycles.
Anxiety Disorders	Irrational fears, includes several disabilities such as generalized anxiety disorder, obsessive compulsive disorder, panic disorder, posttraumatic stress disorder, social anxiety disorder and phobias.
Conduct Disorder	Aggression towards people and/or animals, destructive behavior, deceitfulness, stealing, lying, truancy, violation of rules.
Psychotic Disorders	Abnormal thinking and perceptions including delusions and/or hallucinations, hearing, seeing, or feeling something that is not there.

*Source: National Institute of Mental Health (NIMH), National Alliance of Mental Illness (NAMI)*

As the number of students with a documented emotional disturbance continues to increase, there is a growing concern that the number of students who experience symptoms of emotional distress without having an official diagnosis from a health professional is also increasing (Beresin, 2017). It is this population of students that higher education professionals need to consider while programs are developed to address the emotional wellness of the student body as a whole. Higher education administrators and campus healthcare professionals may have the opportunity to reach the target population of students by developing a comprehensive student wellness program that

combines new technology based platforms with existing programs that are already in place. This endeavor has the potential to not only reach more students, including those who do not seek help, but also provides a path to improve upon the services that are already being offered to those who have sought help.

### *Technology as a Supplement to Mental Healthcare Services*

While college campuses have seen improvements in the provision of face-to-face campus counseling services, students who seek out these services often face long wait times for appointments (Kim, Hollensbe, Schwoerer, & Halbesleben, 2015). Due to the increasing need for counseling services, it is not uncommon for wait times to exceed 3 to 6 weeks due to the low number of psychological assessment staff in college counseling centers (Kim et al., 2015). There is also concern over the triage process at campus counseling centers. With psychological wellness issues encompassing a wide variety of afflictions, campus health professionals have the responsibility of not only meeting the needs of the students, but determining the level of urgency for each particular student case. Without having a full psychological history on hand each time a student requests counseling services, health care professionals are hard pressed to make this determination without additional data (Meng et al., 2018).

Researchers have begun using mobile technology to assist in mental healthcare on college campuses as a way to supplement the growing need for services (Naslund, Aschbrenner, Kim, McHugo, Unutzer, Bartels, & Marsch, 2017). In conjunction with facilities and programs that are already in place on campus, the use of this new technology can potentially increase the likelihood of student success and improve clinical service wait times across campus. Supported by the significant increase in smartphone usage over the past decade, healthcare professionals and

researchers have had the opportunity to explore new methods by which they can access health data (Bush, Armstrong, & Hoyt, 2018). Knowing that the student body is largely connected to mobile technology, colleges and universities would be wise to connect with the student body by combining the use of these familiar mobile technologies with emerging apps and software in order to provide clinical care to more students with far less wait time.

New developments in mobile apps have the ability to collect phone-based sensor data from patients by accessing the Global Positioning System (GPS) data as well as accelerometer and audiovisual data, which can be used to measure the psychological health of the patient (Bush et al, 2018). Data such as this, obtained from the smartphone or by usage of wearable activity tracking devices such as wristband technology, has provided researchers with information that can indicate changes in the emotional status of a patient, such as changes in mood, onset of depression, and patterns of disrupted sleep behaviors (Bush et al., 2018). In addition to the collection of phone based sensor data, technology has also allowed researchers to explore other means of assisting patients with their mental health concerns by implementing technology based self-help strategies, virtual reality exposure interventions, and programs that teach the end user psychological coping strategies through the use of a game platform (Ebert, Van Daele, Nordgreen, Karekla, Compare, Zarbo, Brugnera, Overland, Trebbi, Jensen, Kaehlke, & Baumeister, 2018). Due to these technological advances, researchers at several universities are exploring ways that mobile technology can supplement current treatments, assist with reducing wait times for clinical care on college campuses, and provide clinicians with vital health information without the student having to come in for an appointment (Quilantan, 2018; Skovgaard-Larsen, Frandsen, & Erlangsen, 2016).

Mobile technology apps have also given clinicians a way to see into the personal world of the student in need, gaining an inside perspective on daily activities (or lack thereof) and vital stats,

such as heartrate, activity level, sleep patterns, socialization, and blood pressure (Luxton, McCann, Bush, Mishkind, & Reger, 2011). Detailed health statistics such as these are often gathered through self-report from the patient, making the data unreliable. With the use of mobile technology, real time behavior monitoring offers new opportunities to expand the current understanding of psychological behaviors (Naslund et al., 2017). Researchers at Michigan State University are at the forefront of research into mobile health care assessment technology (Cortez, 2014). With the creation of their iSee program, researchers are paving the way for clinicians who hope to reach beyond self-report and into the mind of the patient. By utilizing the technology that already exists within smartphones, the iSee program uses GPS, motion tracking, and microphone data to track student behaviors in order to examine physical activity, social interactions, and sleep patterns. That data is then transferred to a dashboard that the clinician can view at the counseling center or clinic (Cortez, 2014). Data such as this can then be used in conjunction with observational and self-reported data, and can also be used to determine if there is an urgent need for a student to come in for an appointment. Similarly, the StudentLife project spearheaded by researchers at Dartmouth College used mobile technology to examine the behaviors of the student body and found correlations between those tracked behaviors and the students' state of mental stress and anxiety (Wang, Chen, Chen, Li, Harari, Tignor, Zhou, Ben-Zeev, & Campbell, 2017). Other researchers are exploring similar programs, such as the MONARCA Project (**Monitoring Treatment and Prediction of Bipolar Disorder Episodes**) which uses GPS and accelerometer data of bipolar patients to gain a better understanding of their mental health status by examining their activity, sleep duration, mood, medication intake, physical activity, and social activity (Meng et al., 2018). Data findings such as this will allow clinicians to monitor students who are struggling, and will assist in getting those students into the clinic for care as quickly as possible. This data

may also prove to be useful to the students themselves. Clinicians have reason to believe that providing students with an objective look at their data can provide a checkpoint against the subjective understanding they may have about their own behaviors (Meng et al., 2018). Additionally, as students learn to use this mobile technology, they will become more proficient at predicting their own behaviors and will learn to manage these behaviors over time using the acquired self-help skills that many of these applications teach (Cortez, 2014).

While mobile technology can offer campus healthcare professionals additional data with which they can assist their existing clients, there is also a need for technology based programs that reach the population of students who do not seek out services. Currently, the most commonly used application of technology based intervention in mental healthcare is for guided self-help (Ebert et al., 2018). According to an article published in Inside Higher Ed, Colorado State University, in conjunction with Grit Digital Health, created a mobile application aimed at reaching students who are unlikely to seek out mental health services and who are considered at risk of self-harm or of inflicting harm on others (McKenzie, 2018). The product that they created, YOU at College, is a platform that educates students about many aspects of academic success and wellness, with mental health being merely one of those aspects. By providing information about emotional wellness concerns, this platform helps students to recognize areas of concern in themselves and others (McKenzie, 2018). YOU at College is available to the entire student body, and although it is not marketed as a mental health application, it provides information on how students can access emotional wellness resources on their campus should it become necessary (McKenzie, 2018). Still other applications, such as WellTrack, TAO, and MYPLAN, have all provided students with a technology based method of self-help without infringing upon their privacy concerns while helping

to improve symptoms of anxiety, depression, and hopelessness (Field, 2016; Skovgaard-Larsen et al., 2016).

Applications and programs such as this can be made available to the entire campus community without singling out individuals who are afraid of the perceived stigma attached to emotional disabilities. The use of technology based self-help applications alone has shown some positive results in the treatment of stress and anxiety in college students (Conley, Durlak, Shapiro, Kirsch, & Zahniser, 2016); however, the use of these applications in conjunction with face-to-face counseling services is currently being explored and has shown great potential as an effective treatment for students who are in need of supplemental services when appointment times have been difficult to schedule (Ebert et al., 2018; Gliddon, Barnes, Murray, & Michalak, 2017).

### ***Benefits of a Technology Based Wellness Program***

According to the National Registry of Evidence-based Programs and Practices, many benefits have been realized as a result of the implementation of technology based wellness programs on college campuses, including increased student performance, improved student retention, enhanced campus and student safety, reduced suicide rates, and the improvement of self-help skills (Substance Abuse and Mental Health Services Administration, 2015).

#### ***Student Performance***

Institutions of higher education must consider the effect that emotional wellness concerns can have on a student's overall performance. Emotional illness and psychological disorders can be contributing factors to a student's overall lack of achievement, contributing to concerns about identity formation, student satisfaction, social integration, scholastic performance, and physical health (Ebert et al., 2018). The implementation of technology and mobile based mental healthcare

applications has significant potential to alleviate some of the emotional concerns that college students experience by providing improved access to mental healthcare on campus as well as technology based self-help techniques, thereby improving student performance. Research on the effectiveness of such technologies on student performance has shown positive results in test populations, reducing anxiety and depressive symptoms significantly as compared to the control population which did not receive the treatment (Ebert et al., 2018; Wang et al., 2017). Additionally, studies have found evidence that the use of such technological platforms enhances the likelihood of the student adhering to an existing psychological healthcare program, such as a cognitive behavior therapy (CBT) or dialectical behavior therapy (DBT) program (Prentice & Dobson, 2014). Accordingly, adherence to mental healthcare programming has shown to be correlated to improved student performance (Prentice & Dobson, 2014).

### *Student Retention*

The emotional wellness of the student body can also have a direct influence on the student retention rate of a college or university. Studies have found that the transition of a student from high school to college can cause an increase in stress and anxiety which can rise and fall throughout the years of college enrollment, and does not return to the pre-college level until after graduation or withdrawal (Burris, Brechting, Salsman, & Carlson, 2009). This increased stress has contributed to the number of students who either drop out of college or take a break with the intention to return after their symptoms of stress and anxiety are relieved (Maharaj, 2017). Research has shown, however, that students who skip semesters are less likely to complete their degree than students who did not take any breaks from college (Arria, Gardner-Dykstra, Caldiera, Vincent, Winick, & O'Grady, 2013). Still other studies confirm that the level of perceived stress on a student is the best predictor of retention after the first year of study, with those experiencing



the greatest amount of stress being the least likely to be retained (Saunders-Scott, Braley, & Stennes-Spinahl, 2017). This illustrates the inherent need for institutions of higher education to address the emotional wellness concerns of the students in order to improve the likelihood of retention and persistence. By incorporating the use of technology based applications that promote student wellness and success, colleges and universities would be using a practical method of improving student retention directly while simultaneously improving student wellness, satisfaction, and success.

### *Campus and Student Safety*

Technology based healthcare applications can also give a much needed boost to overall campus safety. Studies report that the majority of violence that occurs on a college campus is perpetrated by individuals with a mental illness (Schwartz, Beaver, & Barnes, 2015). Student and campus safety has grown increasingly more concerning since the inception of social media, as the information age has created a system by which students can obtain and share information instantaneously, subjecting them to increased scrutiny and placing them in a position of personal comparison nearly 24 hours a day (Zimmerman, 2017). In an article posted in The Chronicle of Higher Education, Jonathan Zimmerman, a professor at the University of Pennsylvania, points out that there has been an increase in demands for expanded mental health services due to the rise in school violence and suicides across college campuses which he attributes to the “atmosphere of hyperachievement” that social media has inspired (Zimmerman, 2017, p. 52). Considering that lengthy wait times can have a detrimental effect on a student experiencing a crisis, campuses may benefit from the development and incorporation of a more preemptive based approach to address the issues that college students face. This attempt to assist the student population before issues arise could prevent further escalation of stress, anxiety, and depressive episodes that could

potentially lead to significant campus safety issues (Zimmerman, 2017). While campus safety is already a concern by itself in that it puts individuals in danger, it can also lead to negative press which can then affect student recruitment and retention efforts. Through the implementation of technology based mental healthcare applications, college campuses may not only lessen the prevalence of mental health tragedies on campus, but also strengthen the public's view of the campus by avoiding crisis situations and the resulting negative press.

### *Suicide Rate*

Research has shown that students in need of mental healthcare are also more likely to engage in self-harm or suicidal attempts if not given the services they need at regular intervals as well as when in crisis (Gliddon et al., 2017). Having greater access to mental health accommodations and programming could prove to be highly beneficial to these students when in crisis. The introduction of technology based mental healthcare has empowered college campus counseling centers to reduce the stigma associated with mental illness treatment, has effectively supplemented the efforts of professionals who work in Counseling and Psychological Services offices (CAPS), and encouraged self-help behaviors for those suffering from anxiety, depression, and panic disorders (Lauriello, 2019). According to an article in USA Today, medication use, hospitalizations and suicide attempts have seen a steady climb since 2010 (Simon, 2017). With suicide rates for young adults of traditional college age having tripled since the 1950s, it has become the second leading cause of death among college students, accounting for over 1,100 suicides at colleges yearly in the United States (Centers for Disease Control and Prevention, 2018; Twenge et al., 2019). By incorporating a technology based mental health program, students who are experiencing suicidal ideation could have access to a host of options including peer support systems, anonymous crisis counseling, and counseling center triage priority (Twenge et al., 2019).

As discussed previously, a variety of technology based mobile applications have been explored in relation to how they can assist a student in alleviating symptoms of stress, anxiety, and depression, as well as helping the student recognize feelings that could lead to self-harm and suicidal ideation. Applications and programs that offer the student guidance when faced with an emotional crisis, such as Suicide Lifeguard, Relief Link, and MYPLAN mobile phone applications, have shown positive results in helping that student alleviate the urge to self-harm or attempt suicide (Skovgaard-Larsen et al., 2016). Assisted by the student's counselor, a crisis plan can be created within these mobile applications, assembling techniques and strategies within the application that have proven helpful to that student previously (Skovgaard-Larsen et al., 2016). In addition to these helpful strategies, many mobile applications have the ability to house a list of names and phone numbers for individuals that the student might call upon when facing a crisis, such as family, friends, and health care professionals (Wang et al., 2017).

### *Self-help Skills*

The current population of traditional college age students can be considered the first wave of digital natives in that they have been raised with technology and have come to expect its usage in nearly all aspects of their lives. Accordingly, studies have shown that these digital natives are more likely to seek help through alternative sources of service, such as web based programs and mobile technology apps that monitor health statistics and encourage self-help skills (Tal & Torous, 2017). With the introduction of technological advances that offer global reach, students have become heavily reliant on social media, phones, computers, apps, and devices (Twenge et al., 2019). Encouraging self-help behaviors within the college student population may be as simple as reaching them by using the language that they understand, that being "technology".

Self-help is one method of care that has gained increasing appeal over the past several decades due to its promise of anonymity and ease of access (Kern, Hong, Song, Lipson, & Eisenberg, 2018). Several exploratory studies are testing new intervention methods which implement wristband and mobile app technology with the hope of becoming an efficient option for treatment and for helping students to self-manage their stress and depressive symptoms (McKenzie, 2018; Naslund et al., 2017). While there has been great success using technology based interventions which were designed using the widely accepted principles of cognitive behavioral treatment, other theoretical approaches have recently shown promising results as well, including psychodynamic treatments and mindfulness based techniques (Ebert et al., 2018). Through the implementation of programs that teach students the fundamentals of technology based self-help, institutions of higher education would be serving a previously invisible population of students who wish to remain anonymous.

### *Implications*

The development of any new program on a college campus is best approached through the creation of a strategic plan which offers administrators the opportunity to consider the key issues and concerns of the program. The implementation of a mobile health technology program would need to be given careful consideration in order to be successful considering the sensitivity of the information that would be accessed. Throughout the strategic planning process, the social, financial, and legal implications of a mobile health technology program would need to be considered by various departments across campus.

### *Social Implications*

The implementation of technology based mental health programming would inherently bring with it many social implications that require addressing. While the availability of technology based applications offers institutions of higher education many benefits as discussed previously, there are several fundamental questions that must be explored. The most basic of these questions is whether students would be willing to use such technology to supplement emotional wellness treatment. A collaborative study which examined college students' attitudes towards use of mental health applications found that 26.1% of respondents were willing to use such programs to augment their mental healthcare; however, only 7.3% reported having used similar applications in the past (Kern et al., 2018). The majority of the study participants cited their reasons for interest in mental health applications as confidentiality and convenience of use (Kern et al., 2018). While these figures suggest that there is an interest in using applications for emotional wellness, the actual usage of such programs still remains limited. Although technology based applications offer students the benefit of confidentiality and reduced stigma, it is uncertain whether students would be agreeable to using applications that their healthcare provider could access. Health related mobile health apps are known to collect a host of personally identifiable data as well as lifestyle information and current treatments (Giota & Kleftaras, 2014). While this information can prove helpful to the patient-provider relationship in that it removes the inaccuracies of self-reported data, it also opens up the possibility of the information getting into the wrong hands (Giota & Kleftaras, 2014). For this reason, institutions of higher education must be diligent in exploring mobile applications that do not rely on advertising, as these applications have the potential to compromise the privacy of the students (Giota & Kleftaras, 2014).

### *Financial Implications*

Financial implications are also an important factor for institutions of higher education to consider when exploring the idea of technology based mental healthcare. While one of the basic benefits of offering a technology based mobile healthcare system is to provide cost effective treatments that augment face-to-face appointments, the reality of building such a program has additional financial costs that must be evaluated. Many colleges and universities have found that through the addition of mobile and technology based mental health applications, the hiring of additional personnel can be avoided (Field, 2016). Comprehensive technology based programs such as Therapist Assisted Online (TAO) can cost upwards of \$20,000 per year for licensing, depending on the number of students expected to use the system (Field, 2016). Other technology programs, such as YOU at College, can range from less than a dollar up to \$3.00 per student per year depending on which components of the software the institution wishes to incorporate (McKenzie, 2018). Even for institutions with a very large number of students, the cost of purchasing software licenses would be much less than the cost of hiring additional counseling center personnel. Programmatically, the costs of running technology based programs require less financial burden than the costs of face-to-face treatment; however, institutions of higher education should not neglect to consider the costs of supporting such programs, such as technical development and support staff. Consideration should also be given to the savings that institutions may see through incorporating mobile health technology into their existing psychological wellness programs. Through the inclusion of technology based emotional healthcare, institutions are investing in the student body by increasing the likelihood of student satisfaction and performance which can have a positive effect on retention and graduation rates, as discussed earlier. Improved retention and graduation rates result in additional revenue for colleges and universities, as the loss

of tuition revenue due to attrition can have a significant effect on an institution's bottom line (Raisman, 2013).

### *Legal Implications*

When examining the topic of student mental health technology on the college campus and how to implement these services, several legal issues need to be taken into consideration. Higher education administrators have an important task to not only be aware of existing policy, but to understand any legal boundaries when accessing and sharing student health data. The process of making decisions that involve students who are experiencing distress and displaying symptoms of psychosis or suicidality is challenging on many levels. While the interests of the student and the campus community are of prime concern, each situation requires a case-by-case examination so that the institution can be ensured that the actions being taken are lawful and in the best interest of those involved.

In order to initiate any mental health program on a college campus, administrators must be aware of the two primary legal and ethical standards that dictate how student records are handled. The first set of standards concerns itself with the privacy of the student's education records and includes the Family Educational Rights and Privacy Act (FERPA). FERPA is a federal law administered by the U.S. Department of Education. FERPA encompasses all schools which receive Department of Education funding, including public elementary and secondary schools, as well as both public and private postsecondary schools such as colleges, universities, and vocational schools (Bastedo et al., 2011). FERPA protects the educational records and information for nearly all students with a few exceptions, such as the disclosure of information to other university staff for educational purposes, and to the parents of the student if there is a health or safety emergency. Aside from the exceptions, FERPA rules stipulate that a school may not release personally

identifiable information to any third party unless the student has consented to the release of these records (The Jed Foundation, 2008). When considering student privacy and the educational records of a student who may be experiencing psychological issues, it is important to note that while students medical records that are shared only between the student and the health care professionals are not considered an education record and not subject to FERPA, if those medical records are subsequently used in the decision making process for medical withdrawal or in order to secure disability accommodations, the information would then be considered a part of the academic record and the rules of FERPA would apply (The Jed Foundation, 2008).

The other set of legal and ethical standards that institutions of higher education need to be aware of applies to the confidentiality between clients (the students) and their health care providers and counselors. Mental health care providers on a college campus must abide by not only the licensing standards and code of ethics set forth for their profession, but also by the standards imposed by both the state and federal laws (The Jed Foundation, 2008). A notable policy that falls under this category is the Health Insurance Portability and Accountability Act (HIPAA). The Privacy Rule, also known as the Privacy of Individually Identifiable Health Information, aims to set national standards in regard to the protection of an individual's private health information (Patton, Renn, Guido, & Quaye, 2016). The Privacy Rule was fashioned to bolster the requirement of the Health Insurance Portability and Accountability Act (HIPAA) which was created in 1996 by the U.S. Department of Health and Human Services (HHS) and the Office of Civil Rights (OCR). Through these government organizations, the compliance activities and penalties of organizations that are subject to the Privacy Rule, such as hospitals and medical offices, are enforced and monitored in order to ensure that the health information of individuals is protected while also allowing for the sharing of necessary health information to flow between the treating



facilities or practitioners (Bastedo et al., 2011). The rules and regulations of HIPAA give those who are 18 years of age and older sole control over who sees and receives access to their protected medical records. This can be a concern for individuals who are struggling with a psychological, social, or developmental disability, as the access to the medical records for the caregiver is not automatic, resulting in extra steps that must be taken in order for the individual to grant access to their caretaker, parent, or guardian (The Jed Foundation, 2008). While the emergence of mental health applications is still relatively new, regulatory agencies and standards such as HIPAA will take some time to adjust their policy (Bush et al, 2018).

In addition to the legal and ethical policies that are described above, several other considerations are important to keep in mind as technology based emotional wellness programs are created on a college campus.

#### Disability Law:

The Office of Civil Rights (OCR), part of the U.S. Department of Education (2019), ensures the enforcement of several aspects of a college student's legal rights. The OCR is charged with the enforcement of the Americans with Disabilities Act of 1990, the associated amendments set forth in the ADA Amendments Act of 2008, and the Rehabilitation Act of 1973 Section 504. By requiring that colleges and universities commit to giving individualized attention to each student's case, the OCR attempts to ensure that a case-by-case determination can be made that best suits the circumstances of that student (U.S. Department of Education, 2019). While the mandates set forth by the various disability laws ensure that students are not discriminated against and that they are given equal access to education and reasonable accommodations, the issue still exists whereby the majority of students in need of mental health accommodations are not reporting that they have a disability and are not seeking out services (National Alliance on Mental Illness, 2018).

### Behavioral Contracts:

In recent years, behavioral contracts have been used by some institutions of higher education in order to create a legal (but questionably enforceable) agreement between the student and the health care provider that establishes an agreement of behavioral expectations (Knapp & Masterson, 2018). Campus clinicians have attempted to incorporate a variety of verbal or written agreements that attempt to modify a student's behavior by creating contracts that serve as a promise to refrain from harmful behaviors, such as seen in no-harm contracts (Buelow & Range, 2001). The incorporation of technology based wellness management could potentially be used in the tracking of such behaviors that are included in a behavioral contract. Also found to be useful is the use of a safety plan in which clinicians and their patients develop a plan of how to proceed if the patient is overcome by feelings of anxiety, depression, or suicidality (Knapp & Masterson, 2018). These safety plans have proven to be very beneficial to the students who experience these feelings but have trouble with their self-soothing skills and need guidance (Knapp & Masterson, 2018). Additionally, institutions who incorporate mobile healthcare options to supplement face-to-face treatment for students at risk must consider a crisis intervention plan should a suicidal crisis become apparent on campus (de Beurs, Kirtley, Kerkhof, Portzky, & O'Connor, 2015). Whether these behavioral contracts are legally binding is a question that varies state to state and is difficult to determine. Institutions of higher education who wish to incorporate a technology based mental healthcare system on campus should be sure to investigate the laws of the state in which the college or university resides.

## Conclusion

In consideration of the technology based methods for the prevention and treatment of emotional and psychological issues that were discussed throughout this paper, institutions of higher education should be well positioned to incorporate new technology based practices into their existing programming in order to extend their current reach. By expanding the current programs and accommodations through the utilization of previously untapped methodology, such as the incorporation of technology based healthcare applications, campus administrators can formulate a comprehensive psychological wellness program that not only meets the needs of the student body, but one that surpasses that need by reaching out to the student population before psychological wellness issues manifest and become a larger concern. Through the resulting increase in student satisfaction and retention, college campuses would see not only a fundamental benefit in student success while on campus, but also ensure the subsequent graduation of a student population that is prepared to enter the workforce and become contributing members of society.

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