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**Embedding Mental Health Counselors on a College Campus:  
Assessing for Early Intervention Effects**

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**Embedding Mental Health Counselors on a College Campus:  
Assessing for Early Intervention Effects**

**by**

**Michael Jordan Balsan**

**Dissertation**

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

**Doctor of Philosophy**

**The University of Texas at Austin**

**August 2020**

## **Dedication**

This dissertation is dedicated to all of my parents and my partner. Without your love and support, my doctoral journey would not have been possible. I am immensely grateful for your examples of finding the beauty and purpose in work done well and worth doing. To Michelle, my love, I thank you for the grace you have shown me these past few years. You have given me a world full of wonder and the gift of a life embracing the unknown. Thank you for guiding me to be a patient companion and to listen with a heart as open as the sky. May we reflect in each other for many years to come.

## **Acknowledgements**

I would like to acknowledge my lovely committee and the entire staff at The University of Texas Counseling and Mental Health Center. Y'all have been a shining example of what worthy work done well can look like. This dissertation would not have been possible without you.

## **Abstract**

### **Embedding Mental Health Counselors on a College Campus: Assessing for Early Intervention Effects**

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Rates of diagnosable mental health conditions in college populations constitute a mental health crisis for this population. Of the roughly 30% of college students who will experience a diagnosable mental health concern while enrolled in higher education, only 18% of those students will access treatment while enrolled (Eisenberg, Hunt, & Speer, 2012; Grant et al., 2003). One innovative approach for addressing this issue is embedding mental health providers in academic settings across college campuses. This approach potentially addresses the social and structural barriers to student help-seeking (McLeod & McLeod, 2015). Further, these programs are thought to promote early help-seeking in students from populations that are traditionally under-treated on college campuses (Boone et al., 2011). To date, little research has been conducted on such embedded programs. Further, research has inadequately addressed the question of whether these programs address the treatment-gap in specific student populations. Additionally, little information on the campus-wide impact of such programs has been published. The current study adds to this area of research through analysis using longitudinal archival data. This data was

collected over 6 years of counseling records from an embedded counseling program and a traditional counseling center. The results of this study demonstrate a number of significant effects of embedding counselors in academic residence on students' mental health and help-seeking at a large public college campus.

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## **Introduction**

Institutions of higher education in the United States are experiencing a mental health crisis. Students attending educational institutions demonstrate a growing level of need for mental health services (de Girolamo, Dagani, Purcell, Cocchi, & McGorry, 2012; Drum, Brownson, Burton Denmark, & Smith, 2009; Zivin, Eisenberg, Gollust, & Golberstein, 2009). A study of students' scores on the MMPI suggests a 500% increase in the frequency of psychological disorders over the last 70 years (Butcher, 2010; Twenge et al., 2010). Additionally, recent research by Gore et al. (2011) suggests that these concerning rates of psychological disorders now constitute the leading cause of disease burden in the U.S. for young adults. Furthermore, a longitudinal study of college students' mental health estimated that roughly one-third of undergraduate students surveyed qualified for a diagnosis of a serious mental health condition (Eisenberg et al., 2012; Grant et al., 2003). Further research by Drum, et al. (2009) found high rates of suicidal ideation, with 6% of students across 70 colleges and universities reporting seriously considering suicide in the past 12 months.

This trend in student mental health is alarming. However, the observed trend also offers an opportunity for colleges and universities to intervene in a critical stage of students' pathogenic process. As roughly three-fourths of all lifetime mental health disorders in the U.S. develop by the age of 24, colleges and universities are uniquely positioned to monitor and intervene with young adults in distress and to influence the course of mental health in America (Kessler et al., 2007). Indeed, college counseling centers offer a powerful mental health intervention platform as roughly 4 in 10 Americans between the ages of 18 to 24 are enrolled in higher education (National Center for Education Statistics, 2016).

The opportunity for college and universities to address this mental health crisis is complicated by the fact that few students ever seek counseling for their concerns. Research suggests that only 18% of college students with a diagnosable condition seek help from a mental health professional (Eisenberg et al., 2012). This lack of help-seeking exists despite substantial university outreach and counseling centers offering free or low-cost counseling to students (The Association for University and College Counseling Center Directors, 2016). Even with these efforts, a majority of students do not seek mental health services at the onset of their disorders and often never enter treatment while on campus at all (Kessler et al., 2007).

This lack of help-seeking at the onset of symptoms is problematic for many reasons. For one, clinical research suggests that treatment at or near the onset of a mental health disorder is associated with substantially reduced lifetime disease burden and the development of fewer secondary disorders (de Girolamo, Dagani, Purcell, Cocchi, & McGorry, 2012). It is essential that students not only have increased access to services, but that the interventions address their risk early (Douce & Keeling, 2015). By allowing for more targeted and appropriate interventions these efforts can address symptoms earlier in their development, thus reducing their course and severity (Miller, 2014). If more students with mental health concerns enter into effective treatment in a timely manner, it may result in a substantial shift in the overall disease burden in the United States.

### **EMBEDDING COUNSELORS**

While there are many obstacles to college student treatment, one promising strategy is to intervene early with students via the practice of embedding mental health providers within academic resource centers (McLeod & McLeod, 2015). The practice of embedding counselors is common among larger universities and is designed to augment, not replace,

the traditional counseling services on campus (AUCCCD, 2016). The goal of embedding counselors is to remove barriers for help-seeking and subsequently have students enter counseling in earlier stages of their pathogenic process.

Historically, embedded counseling programs (ECPs) were often limited to a handful of satellite locations, such as an off-campus law school, athletics department, or a professional degree school within a university system. More recently, Golightly et al., (2017) report that a number of land grant universities have implemented more substantial, campus-wide embedded counselor programs. Such campus-wide embedded models often include up to a dozen counselors in full time clinical roles with offices physically situated in the academic buildings of the academic college or school. These programs aim to reduce barriers for all students to seek help, but are also designed to improve rates of help-seeking within under-treated student groups (e.g. racial and ethnic minority students, male students, and international students). Importantly, the impact of these programs has yet to be demonstrated. More research is needed to determine whether these programs are achieving their intended outcomes, namely increasing early mental health help-seeking and reducing barriers to counseling for under-treated populations on campus.

Boone et al., (2011) describe the popular “Let’s Talk” program that started on the campus of Cornell University and has since spread to a number of American universities. By embedding counselors outside of the traditional counseling centers that use traditional reception desks and waiting rooms, “Let’s Talk” purports to offer students a more informal, inviting, and destigmatized avenue through which they can access the support of a licensed mental health provider. Embedding the counselor where students’ normally congregate is also thought to make it easier for students to know about and contact a mental health professional.



Boone et al., (2011) suggest that embedded and informal models of mental health counseling may serve traditionally difficult to reach populations like international students, male students, and students of color. The U.S. Department of Justice mandates colleges and universities to offer education without discrimination based on race, national origin, language, sex, religion, and disability (“U. S. Department of Education Protection of Human Subjects,” 2017). That specific groups of students are under-treated on campus raises the question of equity for students on these campuses. For ethical, legal, and moral reasons, administrators and clinicians have been working to create structural changes to campus environments and counseling services in the hopes of addressing these inequities (The Association for University and College Counseling Center Directors, 2016).

One possible source for the current disparity in help-seeking is that attitudes towards professional mental health services and subjective norms differ across different student subpopulations. A number of cultural factors have been identified as possibly related to the low rates of help-seeking in these student subpopulations, including: A desire to save face, gender norms, mental health and help-seeking stigma, and mistrust of primarily White medical institutions (Chen, Romero, & Karver, 2016; Kim, Park, La, Chang, & Zane, 2016; Liu & Iwamoto, 2007; Bonner, 1997). Boone et al., hypothesize that these informal settings present fewer barriers for potential clients from under-utilizing student subpopulations including international, Asian, Asian American, African American, Black, Latino, and Male identified students. To date, little research has been published to support the hypotheses behind ECP programs like “Let’s Talk.”

#### **LIMITATIONS OF EXISTING RESEARCH**

Unfortunately, Boone et al.’s (2011) evidence to support the impact of “Let’s Talk” on student wellness is limited. The authors state that “Given that Let’s Talk is not a formal

clinical service, keeping clinical notes of encounters with students would be contrary to the program's mission." (p. 201). This lack of formal clinical notation and record keeping makes measuring program impact difficult. Furthermore, their claim that this embedded counseling program may increase help-seeking in under-represented student subpopulations is anecdotal and includes no statistical analyses. Additionally, no analysis of any possible early intervention effects was offered. Finally, as "Let's talk" is a non-clinical model, comparing it to a clinical campus counseling center program presents concerns about the validity of their conclusions. This lack of empirical evidence or follow up to the "Let's Talk" model leaves a substantial gap in the literature as to the effect of ECPs on college campuses. This gap is remarkable as "Let's Talk" and other embedded programs are now present on a number of college and university campuses despite the lack of published evidence of its success.

## **STUDY GOALS**

Without longitudinal data, it is difficult to determine the impact of such programs. Despite the lack of research, universities are moving forward with implementing non-traditional clinical models and programs. This is problematic for at least two different reasons. First, if limited counseling budgets are being used for unproven programs, effective services may be even more limited for the students who need them. If these programs are indeed as effective as some authors seems to believe, then the lack of evidence undercuts their argument and may result in slower program uptake and implementation or even lack of future financial support from university stakeholders. The current study aims to fill in some of these empirical gaps. By collecting and analyzing longitudinal campus mental health help-seeking data, this study will test the previous

assertions by Boone and others that embedded counseling programs can have significant impacts on students' help-seeking behavior on college campuses.

The following study goals were the focus of this dissertation:

Goal 1: Determine the impact on student mental health help-seeking of implementing a supplemental embedded counseling program on a large college campus.

Goal 2: Describe the differences between students who seek treatment from a traditional counseling center and those who seek treatment from an embedded counselor.

Goal 3: Assess whether embedding counselors can increase the rate of help-seeking in under-treated student populations.

## **SUMMARY**

Higher education has the increasingly serious and complex challenge of serving the mental health needs of today's college students. Despite increases in frequency and severity of mental health needs on campuses, students' mental health help-seeking and subsequent rates of treatment are relatively low and not equally distributed across certain groups of students (N.-Y. Choi & Miller, 2014; Eisenberg et al., 2012; J. E. Kim, Park, La, Chang, & Zane, 2016). The current study aims to test whether embedding counselors in academic residence improves student help-seeking. In addition, this study will help test whether this program may offer a partial solution to the disparity in help-seeking differences across groups of students.

This reduction in the disparity to entering treatment may result in students receiving treatment earlier who otherwise might have delayed or forgone seeking help. To date, little research has been conducted on the impact of embedding counselors on a college campus.

The college counseling research field would benefit from analyzing campus clinical data after the implementation and roll out of an ECP on a campus. By using proximal measures of students' age, academic rank, and clinical symptoms on in-take, the panel analysis design will be able to determine if implementing the ECP helps students seek help earlier and whether this earlier help-seeking is accompanied by less severe symptoms.

The current study proposes to inspect the impact of a campus-wide embedded counselor program housed across 12 colleges and schools on a large public university campus. Archival counseling data from the campus's traditional counseling center was compared with data from the embedded counselor program. This study aims to begin the work of addressing the gaps in embedded counseling research by clarifying the impact of implementing an embedded counseling model across a campus over time.

This secondary data analysis will describe the impact of the implementation and roll out of an ECP between 2015 and 2018 as well as a 3-year baseline period of 2013-2015 for comparison. This 6-year longitudinal archival study will focus on whether the introduction of the ECP augmented rates of help-seeking in traditionally under-treated student populations. An analysis will determine whether students from these groups (e.g. Asian American students) are more likely to seek help for a mental health concern after the ECP is implemented in their school or college. This study will also inspect whether reducing the barriers to help-seeking by implementing the ECP resulted in students seeking help sooner and with lower levels of distress. To test for this possibility of earlier help-seeking in the ECP, clinical symptoms, age, and year in school will be collected from intake records including the Counseling Center Assessment of Psychological Symptoms Scale (CCAPS-62) and the Standardized Data Set (Center for Collegiate Mental Health, 2012).

To determine whether the embedded model offers better rates of help-seeking for students from traditionally under-served populations, this study will compare ECP and CC

student demographic data reported on intake. The current study hypothesizes that the ECP will result in younger students with lower initial clinical severity in students seeking services through the ECP, as well as an increased rate of help-seeking in traditionally under-treated student groups. By testing for evidence of student's entering ECP earlier than students in treatment at the CC, this study hopes to determine if ECP offers an effective secondary prevention approach to college mental health. By focusing on different group's rates of help-seeking from the ECP, this study aims to test Boone et al.'s (2011) hypothesis that the ECP lowers barriers to treatment for international, first generation, Asian, Asian American, African American, Black, Latino, and male-identified students. Providing effective and culturally appropriate services to all students is an important component to maintaining campus mental health and measuring the impact of such a program on different groups of students is vital to achieve this end.

## RESEARCH QUESTIONS AND HYPOTHESES:

0. What are the descriptive statistics of student demographics in the ECP and the CC programs?
  - a. Hypothesis: Students who seek treatment from the ECP versus the CC program will differ in their race/ethnicity, age, gender identity, international student status, academic rank, first generation status, history of mental health help-seeking, history of psychiatric medication use, history of hospitalization.
    1. Method: A frequency table of demographic characteristics will be disaggregated by treatment program for each college or school. Demographic variables to consider include: Age, Race/ethnicity, gender, international student status, academic rank, first generation student status, history of mental health help-seeking, history of psychiatric medication use, history of hospitalization.
1. What are the effects of implementing the ECP on college campus mental health help-seeking?
  - a. Hypothesis: Implementing the ECP will increase overall rates of student help-seeking.
    - i. Operationalized Hypothesis: When the ECP is rolled out at each college and school on campus, the number of students from that

college or school seeking treatment for the first time will increase for that period.

1. Method: A panel analysis will test for an increase in student help-seeking for each college or school when the ECP is introduced.

b. Hypothesis: The ECP serves as an early intervention for students in distress.

- i. Operationalized Hypothesis: Implementing the ECP in a given college or school should result in students presenting for treatment with lower overall severity on CCAPS-reported depression, anxiety, suicidal ideation, social anxiety, academic concerns at intake.

1. Method: A series of panel analyses disaggregated by academic rank will test for the effect of introducing the ECP on the severity of these symptoms for students while controlling for time and the fixed effects for the college or school.

ii. Operationalized Hypothesis: Implementing the ECP in a given college or school should result in younger students presenting for treatment when disaggregated for academic rank.

1. Method: A panel analyses disaggregated by students' academic rank will test for the effect of introducing the ECP on the age of students while controlling for time and the fixed effects of the college or school.

2. Does the ECP reduce barriers to mental health help-seeking in under-treated populations?

- a. Hypothesis: The introduction of the ECP to a college or school will result in an increase in the proportion of Asian American/Asian students who seek counseling while enrolled in that college or school.
- b. Hypothesis: The introduction of the ECP to a college or school will result in an increase in the proportion of Black or African American students who seek counseling while enrolled in that college or school.
- c. Hypothesis: The introduction of the ECP to a college or school will result in an increase in the proportion of Multi-racial students who seek counseling while enrolled in that college or school.
- d. Hypothesis: The introduction of the ECP to a college or school will result in an increase in the proportion of Hispanic/Latino(a) students who seek counseling while enrolled in that college or school.
- e. Hypothesis: The introduction of the ECP to a college or school will result in an increase in the proportion of international students who seek counseling while enrolled in that college or school.
- f. Hypothesis: The introduction of the ECP to a college or school will result in an increase in the proportion of Male-identified students who seek counseling while enrolled in that college or school.
- g. Hypothesis: The introduction of the ECP to a college or school will result in an increase in the proportion of first-generation students who seek counseling while enrolled in that college or school.

1. Method: A series of panel analyses will test for the effect of implementing the ECP on the proportion of students



from each of the student groups mentioned in hypotheses a through g who seek counseling on campus. These models will benefit from including the proportion of enrolled students in each sub-group by school by semester. This step will ensure the large differences in total school enrollment across sites from being averaged together and overweighting effects for large schools while underweighting effects for smaller schools.

## **Literature Review**

This literature review will offer an overview of college counseling, its history, programs, problems, and issues. It will also offer a description of community-based programs similar to the ECP and discuss the successes and limitations of these programs in intervening with community mental health. Further exploration of observed group differences in help-seeking on college campuses will be discussed in conjunction with how these differences may be served by the ECP program.

### **A BRIEF HISTORY OF COLLEGE COUNSELING CENTERS**

The history of college counseling centers in the U.S. is less than a century old. After World War II, the GI bill introduced a wave of young soldiers with unrecognized and untreated wartime trauma to college campuses in the 1940s. The initial counseling centers were originally designed to help soldiers shift from military to civilian life by offering assessment and career services but little in the way of psychotherapy (Prince, 2015). In the 1960s a second shift occurred as students' growing needs for psychotherapy were recognized. The 60s and 70s were also a period of increasing regulation and the medicalization of psychology. New, stricter rules and competencies around licensing and training for psychologists emerged and have continued to develop every decade since (Boyd et al., 2003). Colleges, students, and even politicians have pushed for innovations in college counseling. Recently, President Barack Obama issued a call for innovation and action to address mental health on college campuses (Douce & Keeling, 2015). While the history of student mental health and psychology unfolds, the role of counseling centers continues to grow and change. Currently, counseling centers are complex, multi-faceted, and bureaucratic institutions tasked with supporting students' mental health, academic success, safety, and wellness (Douce & Keeling, 2015).

## **THE IMPORTANCE OF COLLEGE COUNSELING CENTERS**

The published literature suggests campus mental health centers are providing positive clinical outcomes for their clients. Roughly half of all students attending college counseling show clinically significant improvement while enrolled (Draper et al., 2002). Furthermore, Schwartz (2006) estimates that if college counseling centers did not exist, the students currently in counseling on their campuses would be at 18 times the risk of dying by suicide compared to the population of nonclinical students. As of now, students in counseling are only at 3 times the risk of dying by suicide compared to their nonclinical peers (Schwartz, 2006). Unfortunately, due to the growing levels of need and tight budgets many counseling centers are shifting to a short-term clinical model (Farrell, 2008).

According to Wolgast et al. (2005), significant improvement can be observed in clinically severe students in as little as 14 to 20 sessions but centers that can offer such long-term services are increasingly rare. A 2016 report from The Association of University and College Counseling Center Directors (AUCCCD) suggests that roughly 55% of college counseling centers limit the number of sessions offered to students although the majority of these indicated some flexibility with session limits (The Association for University and College Counseling Center Directors, 2016). According to this report, the average number of sessions, not including psychiatry appointments, for students in treatment at a college counseling centers is 5.46 (2.10), far fewer than the number of sessions recommended by Wolgast (AUCCCD, 2016).

While tight budgets and constrained clinical models impose limits on counseling centers, these institutions continue to prove their ability to make positive changes in the lives of their students. (Minami et al., 2009) found evidence to suggest that college counseling is as effective as the gold-standard clinical trials for symptoms of depression. In their study, roughly four out of every five students presenting with depression that

attended at least two counseling sessions experienced a significant improvement when compared to a waitlist condition. Additional research has found similar results in the treatment of academic distress, anxiety, and suicidal thoughts and behaviors (Lockard, Hayes, McAleavey, & Locke, 2012); (Monti, Tonetti, & Bitti, 2013)(Schwartz, 2006). Additionally, entering clinical services may be related to improved student retention but more research is warranted in this area (Jonietz, Balsan, Christman, Runyon, & Brownson, 2017; Sharkin, 2004). While counseling seems to be effective for students who receive treatment, the problem of relatively low rates of treatment remains a challenge. As few as 18% of college students who qualify for a mental health diagnosis receive treatment while enrolled in school (Blanco et al., 2008). In a study of 26,000 students across 70 campuses, (Drum et al., 2009) found that fewer than half of students seriously considering suicide ever entered treatment and one third of those had already been in treatment before the onset of their suicidal ideation. Importantly, clinical models that limit the number of sessions provided to students does not seem to have an impact on student help-seeking behavior (Uffelman & Hardin, 2002).

### **THE LIMITS OF COUNSELING CENTERS**

The importance of considering campus resources designated for mental health services cannot be understated. The push to help students in distress seek treatment is severely constrained by the lack of financial resources, space, and personnel available to even the largest college counseling centers. Unfortunately, even with the seemingly low rate of students in distress who seek treatment, college counseling centers are regularly operating at capacity with long lists of students waiting to see a counselor. The Standards for University and College Counseling Centers suggests that every counseling center

should have a minimum ratio of one full time professional mental health provider for every 1,000 to 1,500 students (The International Association of Counseling Centers Inc. (IACS), 2016). To date such ratios are rarely achieved on campuses. At large universities of more than 35,000 students the 2016 AUCCCD survey found an average ratio of one full time counselor for every 2,624 students, a rate that falls well short of the recommendation by the IACS (AUCCCD, 2016). These problematic staffing ratios seem to contribute to long waiting lists, which may further contribute to delay in treatment for students in distress or even discourage seeking help altogether. The AUCCCD's report shows that on campuses with fewer than one counselor for every 2,304 students wait times amount to a median of 7 business days between scheduling and the first appointment. These waitlists can stretch to as many as 3 to 4 weeks in busy times of the semester. This is problematic for campuses trying to address students' mental health concerns in a timely manner. Additional resource allocation for counseling services may be one key component for shortening students' delay in treatment. To understand how these institutions grew into their current form, it is vital to understand the history of student mental health.

### **TRENDS IN COLLEGE MENTAL HEALTH**

As is noted in the introduction to this dissertation, the mental health burden on students has been growing since it was first measured in the 1950s (Twenge et al., 2010). These concerns about increasingly severe psychopathology were first noted three decades ago after a series of self-report surveys of counseling center staff were conducted by researchers in the 80s and 90s (American College Personnel Association & Project Muse, 1988; O'Malley, Wheeler, Murphey, & O'Connell, 1990). A decade later Benton, Robertson, Tseng, Newton, and Benton (2003) more directly studied this trend by inspecting student self-reported levels of distress over 13 years at a single counseling

center. In their study, Benton et al., reported that the number of students with mental health concerns as well as these students' severity of symptoms has been steadily increasing over the preceding decade. This study received a great deal of attention from the popular press as well as criticism from the academy. As a result of this attention, a lively and public dialogue ensued (Benton, Benton, Newton, Benton, & Robertson, 2004; Benton, Robertson, Tseng, Newton, & Benton, 2003; Rudd, 2004; Sharkin, 2004). The discussion included hypotheses about whether these trends are increasingly endemic in American students, the result of changes in who has access to higher education, and/or if the reported psychopathology is the result of increasing willingness to report distress. While this conversation may not be settled today, it seems plausible that all these factors have been contributing to the observed increase in students reporting high levels of distress.

In considering the rise in the prevalence and severity of mental health concerns in college students, (Hunt & Eisenberg, 2010) suggest the cause of this trend is neither clear nor simple. One major factor they identified is the possibility that the decline of social stigma around mental health has led to an increased rate of help-seeking. Another important factor named in that paper is the wide spread use of adolescent psychopharmacological interventions that allow students with serious mental health diagnoses to attend college who would have previously been unable to due to their unmedicated symptoms. It seems colleges and universities may be experiencing a combination of new and previously unrealized mental health challenges.

Finally, it is noteworthy that the worsening trend of mental health disorders in American young adults is not restricted to college campuses. Epidemiological research suggests that Americans enrolled in higher education have similar rates of mental health concerns to their unenrolled peers (Blanco et al., 2008). Additionally, this trend is not restricted American colleges and universities, student mental health concerns seem to be

increasing in the United Kingdom as well (Broglia, Millings, & Barkham, 2017). While these trends are concerning, Schwartz (2006) suggests that with sufficient resources, college counseling centers can provide for the mental health needs of their students.

### **GROUP DIFFERENCES IN HIGHER EDUCATION MENTAL HEALTH**

This section will review the help-seeking literature that focuses on specific under-treated sub-populations on college campuses. While it would be ideal to collect data on proximal measures of the constructs that lead to lower rates of help-seeking (e.g. conformity to traditional masculinity, specific cultural values, stigma etc.) this dissertation must rely on more distal measures of this construct found in the available self-identified demographic data. Additionally, the way students are grouped may be overly general or homogenizing of largely heterogeneous groups. It should be noted that the demographic label “Asian” is not equivalent to the psychological constructs referred to as “Asian cultural values”. Readers should be cautioned in assuming their equivalence when drawing conclusions about the populations described in this paper. The term “Asian cultural values” for example, is a very broad description of a largely heterogeneous group of students that would require measures of cultural values and acculturation for each sub-population, which is beyond the scope of this dissertation. Due to the lack of construct data and more specific demographic data, this dissertation will only attempt to describe, not explain, group differences in help-seeking and clinical severity. With that limitation in mind, a description of the literature of each sub-group’s help-seeking literature will be presented. Finally, group differences should not be taken as the result of belonging to any given group but the shared experiences and cultural values that define how people are placed in any given group. For example, the experience of perceived racial discrimination is associated with negative mental health outcomes, regardless of ethnic or racial category (Hwang & Goto,

2008). The take away from this is that observed differences are the result of psychological processes that occur due to factors that result in people being grouped together, not due to belonging to a group in and of itself.

### **Male Students**

That men tend to be more delayed and less likely over-all to seek treatment for psychological concerns is a decades old observation (Kessler, Brown, & Broman, 1981). A number of hypotheses have been posed to explain this trend. Previous theories suggested Men experienced lower rates of depression than women because of some essential difference between men and women on a biological level, while others suggested that men may just be slower at recognizing and naming their distress (Kessler et al., 1981). More recent conceptualizations of observed gender differences posit explanations of nurture rather than nature. Tang, Oliffe, Galdas, Phinney, and Han (2014) conducted qualitative interviews with 21 male college students and observed 3 major themes linked to male students' help-seeking. These themes included; 1) denying weakness; 2) limiting self-disclosure and mustering autonomy; 3) redefining strength. Seidler, Dawes, Rice, Oliffe and Dhillon (2016) offer a meta-analysis of 37 published articles on masculinity and mental health help-seeking. These authors' conclusions combine both the earlier hypotheses about men's limited ability to recognize their own distress and the socio-cultural gender norms around seeking help and mental health stigma. Men who endorse more traditionally masculine norms have been shown to be less likely to feel their gender role threatened by needing and seeking help or this disparity are multiple that men are less likely to seek help for emotional disorders (Hammer, Vogel, & Heimerdinger-Edwards, 2013). Furthermore, there is some suggestion that many men who would qualify for a diagnosis of depression do not think of themselves as depressed, and would therefore not seek help despite their



symptoms (Nadeau, Balsan, & Rochlen, 2016). The ECP is thought to be effective with this student population as the interactions with an embedded counselor are less stigmatizing and can be framed as having a conversation rather than going to therapy at a formal counseling center.

### **Asian and Asian American Students**

Asian and Asian American students have been identified as a groups of students who are less likely than their white counterparts to seek help for suicidal ideation, depression, and psychological distress (J. E. Kim et al., 2016; Liu & Iwamoto, 2007; J. Wong, Brownson, Rutkowski, Nguyen, & Becker, 2014). A number of psychological factors have been identified that may contribute to this disparity in help-seeking. Wong et al., (2014) identify three major lines of research in this arena, 1). Structural barriers, 2) Asian cultural values, 3) cognitive factors. The structural barriers include linguistic, health literacy, immigration status, and financial barriers (W. Kim & Keefe, 2010). Choi, Rogers, and Werth (2009) review the literature of Asian cultural values and their relationship to suicide and help-seeking. They suggest that level of acculturation may be a major driver behind this population being under-treated. This suggestion should be situated in the knowledge that further acculturation is not necessarily the solution, but to address the lack of structural support for culturally Asian clients. Additionally, Choi et al., (2009) offer insight into the collectivistic desire to maintain interpersonal harmony above one's self-interest, which may pose an additional barrier to help-seeking in individualistic cultural institutions like counseling centers. The sense of burdensomeness on one's in-group seems to strongly predict Asian American student's suicidal ideation (Y. J. Wong, Koo, Tran, Chiu, & Mok, 2011). In a study of the cognitive factors related to help-seeking in Asian Americans, Wong, Kim, and Tran, (2010) found that students who adhered more to

traditional Asian values were more likely to cope with disengagement strategies. The cognitive strategy of disengagement (rather than engagement) can further contribute to depression and lower rates of help-seeking. This finding may point to an interaction between the desire to not be a burden and maintain group harmony and not seek help as mediated by Asian cultural values. Fortunately, it seems having just one trusted person suggest seeking help can interrupt this process and lead to better rates of help-seeking (Wong et al., 2014). By offering students referrals to a counselor in the student's academic community rather than being expected to go outside of the academic school or college for services at a traditional counseling center, the ECP should be able to circumvent some of the structural, cultural, and cognitive barriers to help-seeking for Asian American Students.

### **Latino/a and Hispanic Students**

In a multicultural counseling study of ethnic minority students' utilization of campus counseling resources and subsequent outcomes, Kearney, Draper, and Barón (2005) found that Latino students tended to use the least number of sessions compared to all other student racial/ethnic groups. Interestingly, this study also found that differences in racial/ethnic difference between therapist and client did not significantly predict client clinical outcomes. In Latina students, the cultural practice of self-silencing (or reducing confrontation and discomfort for the benefit of others to maintain group harmony) falls within the larger cultural construct of *Marianismo* and negatively predicts Latina students' mental health outcomes (Sanchez, Smith, & Adams, 2018). This construct may operate to silence or reduce help-seeking behavior in these students and subsequently lead to campus partners overlooking or minimizing these students' distress. When Mendoza, Masuda, and Swartout (2015) controlled for self-silencing or self-concealment, they found that mental

health stigma still predicted help-seeking behavior in Latino students, but this study did not account for how gender may influence self-concealment, thus leaving questions about how male Latino students may or may not self-conceal. Ultimately, Mendoza et al., (2015) conclude that "... the lack of association between self-concealment and recognition of need may reflect that professional psychological services are not necessarily a primary option for resolving emotional issues in this sample, regardless of one's tendency to conceal personal information from others" (p. 216). Some research suggests that Latino/a students experience lower levels of clinical distress than other ethnic/racial minority groups of students (J. E. Kim et al., 2016). Caution should be taken when considering these findings of lower levels of distress in these populations as cross-cultural ethnic minority studies that compare groups' rates of distress often fail to account for important cultural factors like self-silencing, which may introduce bias in the levels reported. Whether Latino/a students experience distress at lower levels than other groups or just report lower levels due to self-silencing remains to be determined and may ultimately not be the compelling question. Whether programs like embedding counselors are effective in increasing the rate of treatment in this population is a more compelling query but raises the question of formal college counseling as the appropriate solution for this populations' distress.

### **Black and African American Students**

Kearney et al. (2005) found that Black and African American students attended significantly fewer sessions than white students and endorsed fewer and less severe symptoms than their White counterparts. While on its face, this may seem like Black students are receiving adequate care, Snowden (2001) suggests an alternative explanation; These results may be due to Black and African Americans cultural values like self-reliance and mistrust of mental health institutions that have historically oppressed, over-diagnosed,

institutionalized, and terrorized this population. This relationship between mistrust of white institutions and help-seeking attitudes is measured in a study of 105 Black college students using the Cultural Mistrust Inventory (Nickerson, Aloe, Livingston, & Feeley, 2014; Terrell & L. Terrell, 1981). This study found clear evidence that mistrust is the primary driver inhibiting Black and African American college students' help-seeking behavior. Studies like these demonstrate the importance of hiring counselors that can speak to the diversity and experiences of a heterogeneous college population. Mental health stigma and self-concealment (not disclosing one's distress) have also been implicated in the low rates of help-seeking in Black students (Masuda, Anderson, & Edmonds, 2012). Interestingly, Wallace and Constantine (2005) found that Africentric cultural values of communalism, harmony, unity, spirituality, and authenticity were positively correlated with self-concealment and perceived stigma about counseling. This study also found that Black and African American male students were less likely to endorse positive help-seeking attitudes than Black and African American female students. The authors raise an important question about considering the intersectionality of identities when considering group differences. The ECP's referral model, which uses academic resource centers to provide referrals, may help mitigate the stigma associated with Africentric cultural values but may not address mistrust or self-concealment. At the time of the study, the ECP did not employ any Black or African American embedded counselors, which does not address the mistrust component for Black and African American students. This combined with the small number of Black and African American students on campus may create difficulties when trying to make inferences about the effectiveness of the ECP on improving help-seeking for this population.

## **International Students**

The Brookings Institute reports that the number of international students enrolled in American higher education has grown at a rapid rate over the past two decades; between 2001 and 2012 international student visas increased from 110,000 student visas to 524,000 visas (Ruiz, 2001). The report details that the majority of international students trend to come from large cities with emerging middle-classes able to afford an American education. The three largest cities come from Eastern Asian countries namely: Seoul, South Korea; Beijing, China; Shanghai, China.

With the large number of students from these countries, it is no surprise that the majority of psychological research on help-seeking attitudes and international students in the US is on students from Asia (specifically Korea, India, and China). Many of the constructs related to international student help-seeking seem to operate similarly across distinct Asian cultural groups. Lee, Ditchman, Fong, Piper, and Feigon (2014) cite the cultural differences between Japanese, Chinese, and South Korean international students to make the argument of conducting research on international students from specific countries rather than to categorize them as pan-Asian. In the same paper they argue however, that there is a great deal of similarity between these groups in their shared cultural values, specifically, “collectivism, conformity to norms, deference to authority figures, emotional restraint, filial piety, family recognition through achievement, humility, and a hierarchical family structure” (p. 641). In a path analysis of cultural values, stigma, and help-seeking, Lee et al. (2014) found that for Korean international students, internal stigma, perceived external stigma, and perceptions of counseling mediated the relationship between cultural values and help-seeking. This suggests that Asian cultural values may lead to more perceived public stigma, which in turn reduces the likelihood of a student seeking help. Lee et al. found scores on the Asian values to be higher in their Korean

student sample than groups of Asian internal students had scored in their previous studies. This discrepancy may indicate that groups of students from different nations in Asia will have different levels of Asian cultural values and should be treated as unique groups rather than being lumped together. Even if students from Asia score high on Asian cultural values, this does not necessarily mean that all international students are experiencing high degrees of perceived public stigma however. In a study comparing American college students to international students from Japan, Masuda et al. (2012) found no difference in self-concealment or help-seeking stigma. Such findings are somewhat surprising and demonstrate the importance of considering individual countries of origin for groups in international students rather than treating all international students as the same.

While the available help-seeking research literature would benefit from further inspecting cultural differences within different cultural at finer levels of granularity, Ultimately, if international students' help-seeking attitudes are positively correlated with previous counseling relationships, academic distress, and willingness to seek help, then the EC model may hold some promise for these students (Li, Wong, & Toth, 2013). The ECP's decentralized model of counseling may offer a less stigmatized space for students to seek help, which may circumvent the perceived mental health stigma that prevents many of the students in these populations from seeking treatment.

### **The Minority Stress Model**

The argument for supporting specific populations in seeking help for mental health disorders relies not on the assumption that belonging to these groups is inherently more stressful but that membership with these groups is associated with social experiences of stigma, discrimination, or prejudice (Meyer, 2013). It is the social experiences common to these specific groups that contribute to the barriers to help-seeking and in some cases the

development of mental health disorders as well. By addressing these social experiences and offering an alternative method of intervention, the ECP may better serve specific populations that may experience higher levels of distress and traditionally lower levels of help-seeking. These analyses proposed in this study will help determine if the ECP model can serve to promote help-seeking behavior in these specific student populations.

### **MODELS OF HELP-SEEKING**

There are a number of competing but inter-related theories for mental health help-seeking behavior (Eisenberg et al., 2012). The Anderson (1995) Behavioral model offers a conceptual framework for help-seeking behavior that incorporates “Predisposing Factors” (e.g. demographics, health beliefs, and social structures like education or cultural factors) “Enabling Resources” (e.g. Familial and community support for help-seeking), and finally “Need” (The perceived need by the help-seeker and the evaluated need by health professionals). Other models reviewed in (Eisenberg et al., 2012) include the *Network Episode Model*, which attempts to explain informal mental health help-seeking behavior and the individualistic and formal/medical *Health Belief Model*.

The Theory of Planned Behavior (TPB) (Ajzen, 1991) describes behavior as the result of a person’s intention, which is informed by 3 inter-related factors: perceived behavioral control, subjective norms, and attitudes towards the behavior. The TPB fits the ECP and is further discussed below.

### **THEORETICAL FRAMEWORK OF THE CURRENT STUDY**

Aizen’s Theory of Planned Behavior has been used to predict depressed students’ intentions to seek help from a campus counseling center (Ajzen, 1991; Bohon, Cotter,

Kravitz, Jr, & Garcia, 2016). The Theory of Planned Behavior postulates that the intention to seek help in a given context is informed by three key factors: attitudes, subjective norms, and perceived behavioral control. Ajzen's theory acknowledges the clear line between a person's intention and their behavior (see figure 1), but goes a step further to suggest that the social context and the person's self-efficacy (the sense they can achieve a desired behavior) make up that persons "actual control over the behavior" (p.182, Ajzen, 1991).

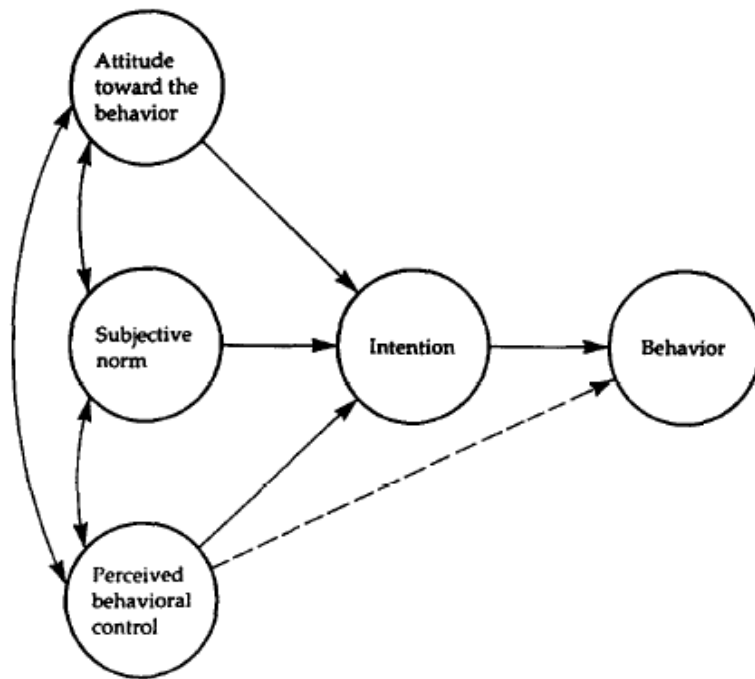


Figure 1. Theory of Planned Behavior Model

As the Theory of Planned Behavior (TPB) is situationally bound, operationalizing the theory requires considering the context in which it operates. Ajzen offers a template on his personal website for creating a TPB-informed instrument to measure behavioral intention (Ajzen, n.d.). Mo and Mak (2009) used this instrument to operationalize these factors in the college mental health help-seeking context for Chinese university students.



Student's attitudes towards seeking mental health services were conceived as the extent to which a student agreed with statements about the usefulness, commonality, and wisdom of seeking professional mental health services.

Subjective norms refer to the extent to which important people in a students' life (e.g. parents, peers, and professors) believe the student *should* seek professional help for a mental health disorder. Example items included "Most people who are important to me view mental health service very negatively." and "Most people who are important to me will seek mental health service if they are in need." (p. 684, Mo & Mak, 2009).

Perceived behavioral control for seeking help for a mental health concern on campus is operationalized by Mo and Mak (2009) as the belief that getting professional help for depression will be easy and possible. Example items included "I can seek mental health service if I like to do so." (p. 684, Mo & Mak, 2009). Finally, intentions were operationalized as "I plan to seek mental health service" (p. 647).

The TPB model suggests that intervening with any combination of perceived behavioral control, attitude, and subjective norms should increase help-seeking behavior. By embedding counselors, programs like the ECP are thought to increase help-seeking behavior by removing physical, attitudinal, and social barriers associated with seeking treatment.

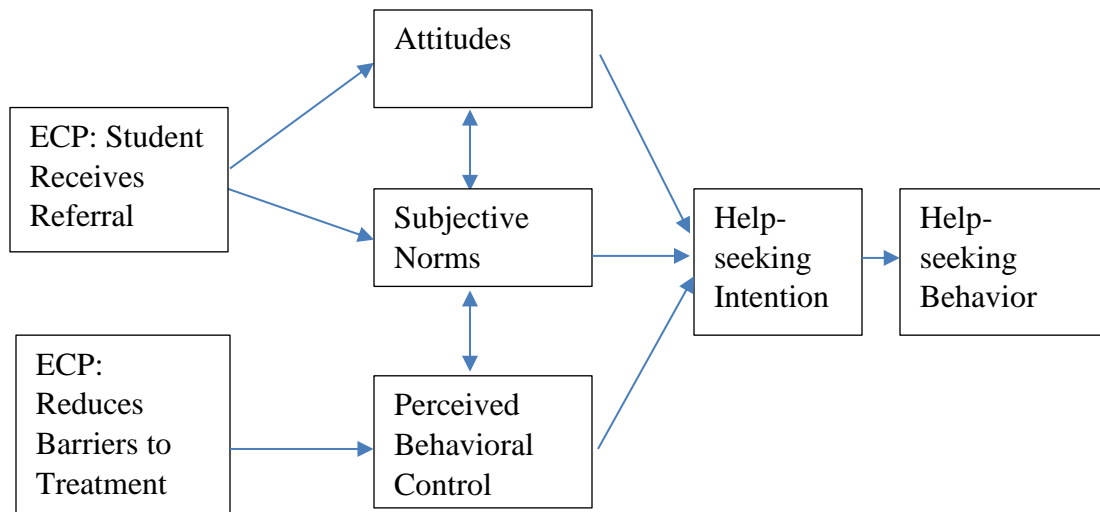


Figure 2. Theory of Planned Behavior in Embedded Counseling

The Theory of Planned Behavior suggests students' help-seeking for a mental health disorder are determined by three factors: Attitudes, perceived behavioral control, and subjective norms of mental health help-seeking (Ajzen, 1991; Bohon et al., 2016). The strategy of embedding counselors closer to students is thought to reduce barriers to entering treatment related to attitudes, perceived behavioral control, and subjective norms of help-seeking (McLeod & McLeod, 2015).

Boone et al.'s, (2011) vision of embedded counseling can be mapped onto this theoretical model. Attitudes are addressed by training surrounding academic staff in the embedded setting to offer referrals for students. Research suggests that having contact with even just one person open to discussing mental health concerns has a significant impact on attitudes towards mental health help-seeking Eisenberg et al., (2012). The training the academic staff receive is vital to the success of these programs as staff referrals constitute an important precipitant for students to initiate help-seeking (Boone et al., 2011).

By providing a referral for services, staff may also influence students' subjective norms around mental health help-seeking. Furthermore, embedding counselors in spaces

students already occupy may have a similar effect as well. By not having to worry about being seen at a counseling center, students can access services with less fear of negative evaluations of themselves by other students or staff (Boone et al., 2011).

Embedding counselors in informal and familiar settings is thought increase students' perceived behavioral control for help-seeking. This perceived behavioral control is also supported by removing layers of formal bureaucratic infrastructure normally found in a college counseling center. Increasing students' sense of behavioral control, increasing their perceived subjective norms for seeking help, and increasing their positive attitudes towards counseling, the ECP model may help students decide to seek counseling. Whether this support for the decision to seek help constitutes an early intervention in students' mental health is another question entirely.

#### **THE IMPORTANCE OF SECONDARY PREVENTION/EARLY INTERVENTION**

The World Health Organization (WHO) conceptualizes disease prevention as a 3-step model (World Health Organization, 2018). These three steps are referred to as primary, secondary and tertiary prevention. Primary prevention is defined as the prevention of a disease-state by addressing risk factors that contribute to the development of a disease. Secondary prevention focuses on screening for and subsequent early intervention with a disease to mitigate the course, morbidity, and/or mortality of that disease. Tertiary prevention refers to the treatment and maintenance of ongoing disease to mitigate future harm or relapse of a disease. This staged model posits that fewer resources are required and better outcomes are more likely if interventions can occur in the first or second stage rather than the third stage. It should be noted however, that it is difficult to demonstrate these early intervention cost-savings for colleges and university systems because students graduate out of the population roughly every 4 years. Fortunately, the health and wellness

outcomes of secondary-prevention systems-level interventions like the ECP can more easily be measured and study.

The effectiveness research on secondary prevention/early intervention for mental health concerns is somewhat limited. Patel, Flisher, Hetrick, and McGorry (2007) offer a comprehensive, albeit dated, review of early intervention research for youth (ages 12 to 24) with mental health disorders. According to Patel et al., the research on early intervention for depression, anxiety, suicide, alcohol misuse, eating disorders, and psychosis has demonstrated positive results, but the effectiveness for personality disorders, substance-use disorders, and eating disorders are not sufficiently developed. In a review of 23 World Mental Health surveys on college student mental health across 21 countries, Auerbach et al., (2016) found the most common mental health disorders for college students to be anxiety (11.7%, S.E. = 1.3%), mood disorders (6.0%, S.E. = 0.7%), and substance-use disorders (4.5%, S.E. = 0.6%). The most common disorders in college students are all found on the list of disorders that respond well to early intervention detailed in Patel et al., (2007). That these mental health concerns seem to be responsive to early intervention is promising and Patel et al., (2007) suggest three promising avenues of intervention: early detection, phase-specific treatment, and health-services reform. The ECP constitutes a program that addresses both the early-detection and health-services reform focuses.

Patel et al., (2007) go on to suggest psychosocial treatment (e.g. psychotherapy) is the recommended first-line secondary prevention against the development of more severe psychopathologies. The authors add that the “judicial” use of psychotropic medications in combination with psychotherapy is appropriate for “more severe and complex presentations” (Patel et al., p. 1307). One study on early intervention in depression

demonstrated the cost-effectiveness of pre-screening youth with identified risk-factors for depression (Lynch et al., 2005).

While primary prevention for mental health concerns would seem to be ideal for minimizing future disease burden, the reality is that many students are already experiencing mental health concerns while enrolled in school. Additionally, although primary prevention would seem to be the ideal mode of intervention, a meta-analysis by Rasing, Creemers, Janssens, and Scholte (2017) reports that primary prevention for anxiety and depression seems to have no lasting effects on adolescents' future diagnoses. As depression and anxiety are the two leading mental health concerns for college students, this finding casts additional doubt on the efficacy of primary prevention strategies on college counseling centers. Add to the fact that Auerbach et al., (2016) report that roughly 4 out of 5 college students who have a diagnosable disorder had the onset of that disorder before enrollment, it would seem secondary prevention rather than primary prevention may be a better focus for on campus intervention strategies. Ultimately, all three stages of prevention are likely necessary for any population, but the available research for early intervention (secondary prevention) of mental health disorders in college students is promising.

#### **EARLY INTERVENTION (SECONDARY PREVENTION) ON COLLEGE CAMPUSES.**

While institutions of higher education offer a compelling platform for large-scale early mental health interventions, mental health help-seeking behavior is often delayed (sometimes for as long as a decade) after the onset of symptoms (Wang et al., 2005). Research suggests that any delay in treatment is associated with worse life-long mental health outcomes (de Girolamo et al., 2012). This delay represents a challenge for the early intervention initiatives that can limit the severity and course of students' mental health challenges. This delay can result in students needing more costly clinical intervention and

treatment (such as intensive psychotherapy, psychotropic medications, or even hospitalizations). Therefore, motivating students to seek treatment closer to the onset of their disorders will not only limit their experiences of distress, but also the need for more resource intensive treatment later on.

The literature indicates that early intervention in the pathogenic process with clients can reduce the number of sessions required for a successful treatment (de Girolamo et al., 2012). de Wolgast et al. (2015) argue counseling centers should incorporate prevention and outreach programs to reach students early, before they experience higher levels of distress. Fortunately, it seems counseling centers are moving in this direction. A 2016 survey by The Association for University and College Counseling Center Directors (AUCCCD) found that 84.1% of campuses surveyed considered campus outreach an integral part of their mission (The Association for University and College Counseling Center Directors, 2016). While this is an encouraging development, such programs take resources to operate and little evidence of their success has been published.

The ECP model combines the traditional counseling center tertiary prevention step of resource intensive counseling services for students with the secondary prevention step of screening and early intervention with students in distress. This is a potentially compelling combination of intervention modes as it aligns with Patel et al.'s (2007) recommendations for a health-system reform that combines early-detection with phase-specific treatment for students who largely have already developed the disorders for which they are seeking counseling.

## **INNOVATIONS IN OUTREACH ON COLLEGE CAMPUSES**

To address the challenge of low rates of help-seeking in students, Garlow et al. (2008) suggest outreach efforts beyond simply offering counseling services to students. Indeed, if Garlow and colleagues are correct, active screening, early intervention and prevention efforts targeted toward young adults may be necessary to address the number of severely distressed students on college campuses.

In response to this growing need for mental health treatment, colleges and universities are developing promising interventions to increase help-seeking in their students (Eisenberg et al., 2009). Apart from the embedded counseling model presented in the introduction to this paper, Eisenberg and colleagues classified other campus mental health outreach efforts into three different strategies: i.) Stigma reduction and education campaigns, ii.) Screening and linkage programs and iii.) Mental health gatekeeping programs.

Hunt & (Eisenberg, 2010) call for more rigorous studies of clinical, outreach, and mental health promotion programs offered by college counseling centers. These authors suggest the research needs to grow beyond descriptive studies and move into measuring and evaluating the impact of invention efforts on campus by using designs that incorporate an inspection of environmental changes, effectiveness trials of various mental health programing efforts, and pre-post testing of clinical services. A review of the limited literature on the effectiveness and efficacy research behind these programs is offered below.

## **INTERVENING AROUND STUDENT MENTAL HEALTH STIGMA**

The literature on stigma suggests that students' negative beliefs about mental health and help-seeking serve as a significant barrier for entering treatment (Pedersen & Paves, 2014). College campus stigma reduction and education programs work to reduce negative stereotypes about people with mental health disorders in an effort to remove barriers to treatment for students in distress (Chen et al., 2016; Pinfold et al., 2005; Tucker et al., 2013). These programs address two different, but related kinds of stigma. The first, perceived public stigma, is the belief that others hold negative stereotypes of people who have mental health disorders (e.g. "people think I am dangerous because I have schizophrenia") (Chen et al., 2016; Pedersen & Paves, 2014). The second type is internalized or self-stigma. Internalized stigma is defined by one's acceptance of negative mental health stereotypes about one's self (e.g. "I am not depressed, I am just lazy") (Boyd Ritsher, Otilingam, & Grajales, 2003). Current stigma reduction campaigns work towards educating, connecting, and empowering people around mental health to reduce feelings of shame, guilt, or fear (Chen et al., 2016).

In general, the current literature suggests that mental health stigma is strongly and negatively correlated with help-seeking behavior (Eisenberg et al., 2009; Tucker et al., 2013). Eisenberg et al.'s (2009) study of 5,500 students across 13 colleges and universities found that mental health stigma is one of the primary reasons students do not seek help for mental health problems. Their study found important differences between the effects of internalized stigma and perceived public stigma on help-seeking. Eisenberg and colleagues found that only students' internalized stigma towards mental health negatively correlated with help-seeking behavior. Surprisingly, the authors found that perceived mental health stigma was unrelated to seeking help. One possible explanation for this discrepancy may be students' belief that having a mental health disorder is not a choice, and therefore not



stigmatized, unlike seeking help, which may be perceived as choosing to be a burden. The authors also found that students who were male, younger, more religious, Asian, international, or from a family living in poverty, were more likely to report higher levels of personal stigma and lower rates of help-seeking. This observed disparity in mental health help-seeking behavior in these socio-demographic populations is supported by a large body of scientific literature (Kim et al., 2016; Tucker et al., 2013; Wong, et al., 2014). However, it is unclear whether mental health stigma or a different mechanism is the primary factor contributing to these groups' help-seeking disparities.

Unfortunately, the connection between mental health stigma and help-seeking behavior seems to be more complicated than the public versus internal stigma research might suggest. Tucker et al., (2013) suggest that mental health self-stigma and help-seeking self-stigma have been historically treated as the same construct. However, the data suggest there are in fact two distinct constructs and that they should be considered separately when designing interventions. Tucker et al. (2013) reports on self-stigma data from a sample of clinically distressed students as well as a sample of community members with a history of mental illness. Their study conceptualizes these two different stigmas as consisting of three factors: shame, self-blame, and concerns about social inadequacy. Tucker and colleagues found that shame and self-blame were related to help-seeking stigma, but not to mental health stigma. Curiously, they also found that mental health stigma but not help-seeking stigma, was related to social inadequacy concerns. The authors suggest that participants experienced shame and self-blame for the choice to seek help but not for having a mental health concern. Shame and self-blame were found to be unrelated to having a mental health disorder. Tucker et al., interpret these findings as demonstrating that having a mental health disorder may not be seen as a personal choice and therefore not a source of shame. Importantly, participants with a high degree of mental health self-stigma felt socially

inadequate, which the authors suggest may lead to further social isolation and stigmatization. Students seem to stigmatize the choice to seek help, which presents a significant barrier to entering treatment in a timely manner.

The study by Tucker et al. was conducted on American undergraduates and the conclusion that shame and self-blame are unrelated to having a mental health disorder is likely not the case in non-western contexts. (Zhu, Tse, Tang, & Wong, 2016) suggest that mental health problems may be viewed differently in a cultural context, like that of China, which places a high value on the Confucian concepts of harmony and social order above individual freedoms and needs.

While it seems clear that stigma inhibits help-seeking, researchers have noted that addressing stigma alone is insufficient to improve rates of help-seeking behavior on college campuses. A recent meta-analysis of barriers to mental health help-seeking seems to suggest that a multi-level approach beyond stigma reduction campaigns is necessary for addressing this gap (Hom, Stanley, & Joiner, 2015). These findings are particularly relevant to the focus of the current study. The strategies suggested by Hom, Stanley, and Joiner (2015) include increasing access to care through low-cost or insurance-supported therapy, internet-based therapy, and working to be more inclusive and sensitive towards marginalized and underserved populations. They also suggest using education campaigns to increase mental health literacy, combat misconceptions about therapy and increase service utilization. These suggestions lead us to consider the second strategy employed by colleges and universities to address the mental health treatment gap on campuses.

## **MENTAL HEALTH SCREENING AND LINKAGE PROGRAMS**

Mental health screening and linkage programs comprise the second major strategy reviewed by Eisenberg et al., (2009). One promising area of research within screening and linkage programming has been the use of online mental health screening tools to estimate student mental health needs on campuses (Eisenberg et al., 2009). In a three-year cross-sectional study of depression and suicidal ideation using an online screening program, Garlow et al. (2008) found that 11% of students experienced current (in the last 4 weeks) suicidal ideation. They also found that 16% of these students had attempted suicide at least once in their lifetime. Alarming, of the clinically depressed and suicidal students, only about 15% were currently in treatment. The limited published evidence for mental health screening and linkage programs confirms the serious need for intervention programs aimed at help-seeking behavior on college campuses.

Essentially, more intervention work is needed. One important component in screening and linkage programs is the ability to extend intervention efforts beyond simply detecting at-risk students. Haas et al., (2008) tested the effectiveness of a screening program that incorporated a help-seeking intervention component. Their research included an effectiveness study of an anonymous online student suicide and depression-screening tool to increase help-seeking behavior in college students. This screening tool consists of a series of diagnostic questionnaires that can identify students at risk for suicide or clinical depression in real time. If students reached a certain clinical threshold during the screening process, the student immediately received an invitation to chat electronically with a live counselor. This counselor then offered to discuss the student's mental health status and, if appropriate, suggested the student attend a formal clinical assessment at the university's counseling center. Of the surveyed students, 981 (84.4%) were classified as being moderate to high risk. Of those students deemed in need of services, 190 (19.4%) agreed to attend an

in-person formal evaluation, with 132 (13.5%) entering treatment. Interestingly, those students willing to chat online were three times more likely to follow up with a formal in-center mental health assessment than those who were not. It seems a combination of screening with a personal connection and referral is more efficacious than an impersonal self-reported diagnostic tool.

Other research supports the finding that students referred by a trusted community member to services are significantly more likely to seek help. For example, Vogel et al., (2007) and Wong et al., (2014) found evidence that having even just one trusted person suggest the student speak to a mental health professional is predictive of help-seeking behavior. The motivating force of having even one trusted person suggest counseling is an important component in the final type of collegiate mental health program detailed by Eisenberg et al., (2012). The idea behind having one person provide a pathway to seeking help is a central pillar of the theory behind the next important trend in outreach programming.

### **GATEKEEPING PROGRAMS**

Gatekeeping programs make up one emerging area of campus mental health help-seeking interventions and form the central focus of the current study. Critical to any gatekeeping program is the use of community members in helping roles who can act as mental health monitors to identify and refer distressed individuals to an appropriate mental health resource. The gatekeeping programs involve finding, recruiting, and training individuals in the community who can serve as “gatekeepers” (Bissonette, 1977b). Once trained, these gatekeepers can connect distressed members of the public with the appropriate mental health services. Historically, sociologists considered bartenders,

hairdressers, police officers, clergy, and secretaries as ideal candidates for gatekeeper training (Bissonette, 1977a, 1979; Naftulin, Donnelly, & Wolkon, 1974). Professionals in these roles were well suited for gatekeeping as they were in regular contact with the public, were generally considered trustworthy, and had jobs that allowed for prolonged private or semi-private conversations with people in distress (Bissonette, 1977b).

One strength of the gatekeeping approach is its underlying theory. The 20<sup>th</sup> century sociologist Bissonette (1977b) first described a theoretical model for the role of gatekeepers as “involving three principle functions: Case finding, referral, and ‘light counseling’” (p 32). Bissonette posits that gatekeepers can be useful in overcoming three major barriers to mental health help-seeking: Reluctance or inability to seek professional help, mental health stigma, and fear of making the problem worse by drawing attention to it. Bissonette suggests a number of criteria for who can serve as an effective gatekeeper. According to Bissonette, gatekeepers should have a role in the community that places them in regular contact with the target population. A gatekeeper’s involvement with the community should include “private and protracted dialogue with strangers and casual acquaintances”, (p. 32) as is the case with professors, advisors, and residence hall monitors. Additionally, the ideal gatekeeper would be of roughly equal social class with the student, which suggests that a high level of power disparity might limit a gatekeeper’s ability to connect with a student, which can create limitations when using university professors as gatekeepers. Finally, the gatekeeper and client should be socially firewalled from each other, which ensures that any disclosure will not have a negative impact on the client’s external social life. These stipulations limit the number of people on a campus that can effectively serve as gatekeepers to students. As a result, colleges and universities that have taken up the gatekeeping model focus training on residence hall advisors, professors, and staff as gatekeepers (Eisenberg et al., 2012).

Gatekeeping programs share similarities to the stigma reduction and education programs. Gatekeepers receive basic psychoeducation, which is vital to addressing students' concerns around seeking treatment. Wong et al. (2014) hypothesize that such gatekeeping programs may be useful to overcome the barriers to help-seeking associated with mental health stigma due, in part, to the positive effect in person referrals have on help-seeking.

Contemporary gatekeeping programs combine stigma reduction as well as screening and linkage strategies to promote help-seeking in students (Eisenberg et al., 2012). Gatekeeping programs work through a similar mechanism to screening and linkage programs but involve training university employees and students to identify students in psychological distress and provide in-person referrals. Unlike general screening and linkage surveys that rely on self-selection for screening, trained community gatekeepers can identify distressed students who might be reluctant to seek help by themselves, thus mitigating screening programs' self-selection problem.

There have been several studies conducted on well-developed gatekeeper programs that meet Bissonette's criteria. One rigorous examination of the popular Mental Health First Aid (MHFA) gatekeeping training program involves three different studies conducted by Kitchener and Jorm (2006). The MHFA program has been implemented in Australia, the U.S., Scotland, Ireland, and Hong Kong. The program involves training gatekeepers to assess the risk of suicide or harm, to listen non-judgmentally, and to provide both information and emotional support to persons in need. The program also trains gatekeepers to encourage those in distress to seek help from mental health professionals and to encourage self-help behavior.

These three studies conducted in Australia included an uncontrolled observational study of an urban community, an efficacy trial in a workplace context, and a randomized

cluster effectiveness trial with members of a rural community. The workplace efficacy trial (n=301) found promising results for gatekeepers' desire and ability to intervene with people in need of mental health support (Kitchener & Jorm, 2006). Compared to a waitlist control group, participants who were randomly selected to receive the MHFA training were more confident in their abilities to provide help to others and more likely to have advised others to seek professional help. These participants were also more likely to endorse attitudes that match the attitudes of mental health professionals about the effectiveness of mental health treatment.

As the MHFA efficacy trial was conducted under tightly controlled experimental conditions, Kitchener and Jorm (2006) conducted their next study as a more naturalistic randomized cluster design within a number of rural Australian communities. In the effectiveness trial, clusters consisted of 16 local municipalities with half receiving the training immediately and half being waitlisted. This trial included 753 participants and found a significant treatment effect. Participants were better able to identify a mental health disorder in a vignette, revealed improved attitudes towards mental health treatment, and were more likely to have intervened with a person who was experiencing a mental health problem. Their study also observed an increase in gatekeepers' confidence to provide help and a decrease in social distance from people with a mental health disorder, which served as a proxy for mental health stigma.

Kitchener and Jorm's examination of MHFA demonstrates promising results for the gatekeepers' outcomes related to intention and self-efficacy around intervening with distressed persons but does not measure outcomes for the person identified to be in need of mental health services. The gatekeepers' mental health even seemed to improve, as indicated by their improved scores on Ware's (1999) Short Form Health Survey (SF-12). Unfortunately, while the MHFA has been shown to be beneficial for the gatekeepers, the

question remains whether it achieves the goal of supporting community members in distress.

To date, the gatekeeping research has traditionally focused on the reduction in mental health stigma and increased sense of self-efficacy in the gatekeepers themselves. While these programs seem to benefit the gatekeepers, less is known about the students such a program is intended to serve. A meta-analysis of studies on college campus gatekeeping programs found that in all reviewed papers that collected data on potential treatment-seekers, none collected clinical symptoms of students who had been referred to counseling through a gatekeeper (Lipson, Speer, Brunwasser, Hahn, & Eisenberg, 2014). The proposed study will be contributing to this knowledge base by offering clinical data related to common student concerns including depression, anxiety, academic distress, social anxiety, and suicide.

Currently, gatekeeping studies that collect data on help-seeking often fail to describe student demographics, symptoms, and clinical outcomes. To understand the impact of mental health interventions like embedded counseling models and gatekeeping initiatives, a more detailed account and analyses of clinical symptoms and outcomes may be warranted. As college campuses become more diverse, it is especially important to collect and analyze student demographic factors as a number of these factors including race/ethnicity, international student status, and gender have been shown to mediate the rates of gatekeeper referrals, student's presenting symptoms, and their subsequent help-seeking ((J. Wong et al., 2014); (Eisenberg, Downs, Golberstein, & Zivin, 2009).

Further study of the gatekeeping literature points to a discrepancy between the popularity of these programs and their demonstrated efficacy. In a meta-analysis of current gatekeeping literature by Lipson et al., (2014a) the authors found a dearth of quality research on the effects of gatekeeper training programs at colleges and universities. Of the



21 articles reviewed, none included a randomized control trial on a college or university and only two of the six studies conducted at the university level had more than 100 participants (Indelicato, Mirsu-Paun, & Griffin, 2011; Tompkins & Witt, 2009). Only two of the 21 studies collected population data on potential treatment seekers and found either no increase or even a decrease in population-level help-seeking or mental health wellness as a result of a gatekeeping program (Freedenthal, 2010; Wyman et al., 2010).

Further research highlights the issues in gatekeeping programs ability to create change for the students who are meant to benefit from them. In a multi-site study of MHFA across 32 college campuses, Lipson et al., (2014b) found a similar trend to that observed in the Kitchener and Jorm (2006) paper that the trained gatekeepers and not potential treatment seekers, were the beneficiaries of the MHFA program. Lipson and colleagues observed an increase in gatekeepers' sense of self-efficacy around spotting and intervening with distressed students, but counseling records demonstrated no significant increase in service utilizations by students because of gatekeeping.

Ultimately, it seems gatekeeping is not a panacea of collegiate mental health but is one of several strategies that use trained persons in the community to serve as supportive one-on-one interactions with people in distress. Bystander intervention programs are also popular on college campuses. These programs train students, faculty, and staff to spot students in distress and intervene. Bystander intervention programs often overlap with gatekeeping programs but are distinct in the scope and intent. Gatekeeping relies on using people with established, university supported helping roles on a campus while bystander intervention programs will often offer training to anyone who is a part of the general community. An important distinction between gatekeeping and bystander intervention is the scope of problems addressed. Gatekeeping is about referring students who could benefit from psychotherapy. Bystander intervention trainings often involve training for intervening

in a wide array of dangerous situations including sexual assault, alcohol poisoning, racism, sexism, academic dishonesty, as well as suicide prevention (Coker et al., 2016; Nickerson et al., 2014; Orchowski, Berkowitz, Boggis, & Oesterle, 2016).

Importantly, bystander intervention programs have limitations, some of which are addressed in the current project. An important distinction between bystanders and gatekeepers is the difference in roles. Gatekeepers on college campuses have the institutional role and obligation to be helpful if approached by a student in distress. Gatekeepers also have the institutional power/backing to effect change or advocate for a student. Conversely, bystanders are often students, who do not have an obligation, role, or institutional power to act as an agent of the university. Bystanders are under no obligation to maintain the privacy of the student or to be required to act if a student discloses suicidal intent or having experienced sexual violence on campus.

While the literature on gatekeeping programs has failed to demonstrate clear effectiveness and bystander intervention offers unspecific and potentially inconsistent support, a third type of program exists that may offer a better path forward to supporting student mental health. The embedded counselor model reviewed in this dissertation involves similar micro-level mental health interactions intended to increase help-seeking and early intervention for students' mental health. These embedded models place counselors in close proximity to the community they serve and, theoretically, this increased proximity lowers barriers to treatment and may provide an early intervention effect on students' help-seeking and subsequent psychological distress (Boone et al., 2011).

It should be noted that much of the language around gatekeeping and embedded counseling is conflated and can lead to confusion. (McLeod & McLeod, 2015) offer a model of "Embedded Counseling" that much more closely aligns with the gatekeeping models

presented in this paper than the types of embedded counseling provided by mental health professionals that the EC offers.

## Methods

In the summer of 2018, a request for de-identified archival clinical data was submitted to the Counseling Center administration. With the support of the University's Division of Student Affairs and the Counseling Center administration, the data was drawn from 7,114 undergraduate student clinical records collected across two counseling programs at the university between the Fall of 2013 and Spring of 2018. This data was organized as a longitudinal panel design (also known as a difference-in-difference) that grouped undergraduate students in 11 different colleges and schools at a large public university. The embedded counseling program (ECP) included student records from all ECP intake surveys administered at all 11 ECP counseling sites. These sites were the schools of Natural Science, Undergraduate Studies, Engineering, Business, Communication, Liberal Arts, Social Work, Nursing, Architecture, Education, and Fine Arts. Collectively, these schools and colleges enroll all undergraduate students on campus with the exception of the Geosciences school, which was added to the ECP after the current data were collected. The central counseling center program (CC) intake surveys were analyzed to compare student responses across the two groups. The combined datasets were anonymized before being made available for this study and included all intake surveys, follow up clinical surveys, and demographic questionnaires from students enrolled in either the ECP or CC programs. Only students enrolled in either the CC or ECP were included in the dataset.

This dataset represents a census of undergraduate students seeking mental health counseling from these two programs over a six-year period. In the case of students who had records with both the CC and the ECP, only the earliest intake survey and subsequent counseling sessions were considered (as indicated by the date and time on each record). In the cases where students are cross-listed in multiple colleges or schools (e.g. Liberal Arts

and Engineering), the school indicated in their record as housing the students primary major was used to determine their placement. These records excluded any CC sessions that are not 1-on-1 general counseling intake appointments (e.g. psychiatry, case management, crisis counseling, substance use, group counseling, or other non-routine counseling sessions) as other types of services offered by the CC program are not comparable to those offered in the ECP program.

All records were collected from a central database of student counseling records. The data generated from the counseling center's Point and Click clinical records software (PnC) was compiled into a comma separated value file for analysis (Point and Click Solutions, 2017). All analyses were conducted with the open-source statistical programming language R (version 3.3.3 or later) and RStudio (version 1.0.136 or later) (R Development Core Team, 2008; RStudio Team, 2016). The "LFE" package was used to conduct the series of fixed effects linear modeling analyses with clustered standard error (Gaure, 2013a). Additional packages were used in the restructuring and analysis of the data (Bache & Wickham, 2014; Croissant & Millo, 2008; Gaure, 2013a, 2013b; Golemund & Wickham, 2011; Horikoshi & Tang, 2016; Millo, 2014; Revelle, 2018; Y. Tang, Horikoshi, & Li, 2016; Team, n.d.; H. Wickham, 2018; H. Wickham, Hester, Francois, Jylänki, & Jørgensen, 2018; Hadley Wickham, 2016, 2018; Hadley Wickham, Francois, & Henry, 2018; Hadley Wickham, Henry, & RStudio, 2019). In addition to sharing the results of these analyses, the appendix to this document includes a link to a step-by-step script of the analysis syntax to provide a level of transparency and reproducibility of the data analysis procedure. Due to the sensitive and clinical nature of the data, this open sharing was not extended to the dataset itself. By sharing the syntax used in the data analysis, the author hopes to provide a clear perspective into the data analysis procedure to ensure other

researchers have access to test for the reproducibility of these results at other universities with similar programs.

## **RECORDS**

Of the 7,114 student records in this study, 5,809 enrolled in therapy with the CC program while the remaining 1,305 students were seen by the EC program. A series of descriptive analyses were conducted to compare EC and CC populations on age, academic year, racial and ethnic makeup, international student status, first-generation student status, history of mental health counseling, history of psychiatric medication use, and history of mental health hospitalization. These results can be found in tables 1 through 10 for a comparison between the ECP and CC groups. Only records from current (at the time of intake) undergraduate students were collected and analyzed for the study. Students who did not indicate their primary academic school or college were excluded from all analyses that required this data.

## **TIME LINE**

Data was collected from the 2013 Fall semester to the end of the 2018 Spring semester. See figure 1 for a timeline of the ECP rollout. An additional time point is added to the timeline in January 2018 to highlight the possible effect of shifting the fee for counseling model previously offered in both programs to a completely free service in January 2018. This reduction in session cost (thus lowering a financial/perceived financial barrier to counseling) may present a non-random effect on help-seeking in students regardless of the treatment program in which students were enrolled.

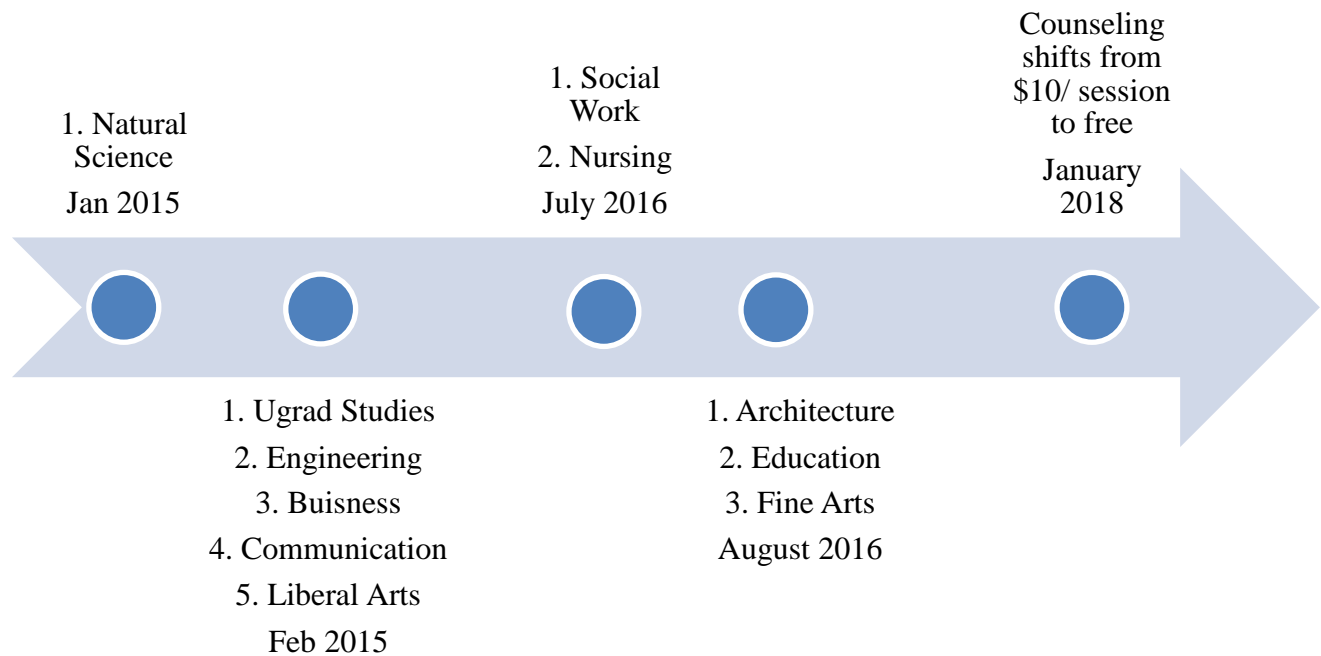


Figure 3. Rollout Timeline of Embedded Counselors by School.

**DATA COLLECTION PROCEDURE**

Students in the ECP group made contact with an ECP counselor in one of two ways. Students who receive a referral for ECP are either walked in-person by the referring staff member or given the phone number and office hours of the ECP counselor. Students would then call and set up an appointment for a later time if the student and/or the ECP counselor are not available to meet immediately. Students could also self-refer to the ECP counselors during a counselor’s open office hours or by contacting the ECP counselor via voicemail. The ECP counselors are tasked with conducting their own triage and intake. The ECP counselors can decide if a student is appropriate for counseling. When a student is not eligible or appropriate for ECP counseling, the counselors can offer the student a referral to the appropriate community resources. Considerations for student triage also include the types and severity of concerns. If a student were found to be eligible for the ECP program

the counselor would then conduct, or schedule for the future, an intake session with the student. The nature of the academic setting of the ECP may influence the types of concerns students present with (i.e. more academic distress concerns than may be found at the CC).

Students seeking counseling from the CC program were able to access a CC counselor in one of two ways. Students could call the front desk to request an appointment with a counselor, and students could also walk in to the center and request to be seen for counseling or schedule an intake session in the future. Each student seeking counseling through the CC first spoke with a brief assessment counselor who spent up to 15 minutes with a student via phone or in-person to determine if the student was eligible and if the CC was the appropriate resource for the student's needs. Historically, the clinical model for the CC has been slightly adjusted year-to-year to adapt to the shifts and trends in student mental health. These shifts have resulted in a counseling center designed as a first stop, short-term support for students in distress rather than a long-term outpatient clinic. The on-going changes and differences between the ECP and CC clinical models were accounted for in the panel design, which controls for both the clinical models and the fixed effects of changes to the clinical model at a given time period. In the cases where a student was not found to be eligible or that the student's needs were not appropriate for counseling, the student was referred to the appropriate community resources. If a student was found to be appropriate for counseling services, the brief assessment and referral counselor scheduled an intake session for the student with their assigned counselor.

Both the CC and the ECP programs have similar intake procedures. Students seeking mental health services from either program were required to complete a series of surveys on electronic tablets before their initial counseling session. These included The Counseling Center Assessment of Psychological Symptoms – 62 (CCAPS) by Locke et al., (2011). The intake process also required students to complete the Standardized Data Set



(Center for Collegiate Mental Health., 2017) a socio-demographic form that includes history of mental health treatment and the source of a student's referral for counseling (if any). All students seeking counseling from either program were told to arrive 15 minutes before their intake session to complete these forms. The intake process for each student is virtually identical except for the physical location. The CC program was situated in a traditional counseling center while the ECP offices were located in academic offices across campus. Students in the CC completed their intake forms in a waiting room while ECP students completed their forms in a variety of semi-private mixed-use spaces outside of the ECP counselor's office.

#### **MISSING DATA**

The electronic intake survey does not require students to complete every item on the CCAPS or SDS. However, very few items had a substantial level of missing data. The SDS item inquiring about student's first-generation status had the most missing values of any item analyzed in this study with 115 of 7114 (1.62%) of students not responding to this item. Subsequently, it is anticipated that missing data will have little impact on this study overall. It is possible that some of the missing data in this archive was the result of some students being forced to complete the CCAPS and demographic items on paper forms when the computer system or tablets malfunctioned. In these cases, paper records were manually entered into the electronic database by counseling staff member. While the individual records completed on paper will not be identified in this dataset, it is plausible that some of the missing data will be the result of paper records transcription error or incomplete paper surveys.

## MEASURES

The Counseling Center Assessment of Psychological Symptoms - 62 by Locke et al., (2011) assesses a series of psychological symptoms commonly found in college counseling clients. Clients are instructed to consider their past two weeks and rank their level of agreement with each item on a 5-point Likert-type scale from 0 (not at all like me) to 4 (extremely like me). Items include statements such as “I feel hopeless” or “My thoughts are racing.” Eight subscales assess for common concerns in college counseling populations and include: Academic Distress, Alcohol Use, Anxiety, Depression, Eating Concerns, Family Distress, Hostility, and Social Anxiety. These subscales are scored by averaging their respective items’ scores, and range from possible scores of 0 to 4, with 4 indicating a higher degree of student distress. The CCAPS also measures for suicidal thoughts in the past two weeks, with the single item “I have thoughts of ending my life.” The CCAPS-62 is a shortened version of the original 101 item and 70 item versions of the CCAPS first developed under the direction of Dr. Todd Sevig, the director of the University of Michigan’s Counseling and Psychological Services. The Locke et al., (2011) paper details four psychometric studies used to test for the factor structure, reliability, construct validity and a preliminary analysis of cultural validity that lead to the development of the CCAPS-62.

The multifactor structure of the CCAPS is the result of an exploratory factor analysis (EFA) using principal axis extraction with an oblique (promax) rotation on the preliminary 101-item instrument in a clinical sample. This EFA revealed 20 separate factors with eigenvalues over 1.00 and 14 scales (of two or more items) that accounted for 64.4% of the sample’s (n = 2,155 students) variance. These factors underwent an iterative process of review by clinicians and researchers who combined or eliminated those factors that overlapped or failed to provide sufficient clinical utility. In addition to this rational

process of item elimination, the researchers used a minimum factor loading of .32 and an item-total correlation minimum of .30 as empirical criteria for keeping each item. A spirituality subscale was eliminated by the clinical team due to a lack of clarity in how the items were interpreted to involve spirituality and religion. This resulted in a 62-item version of the CCAPS that was then subjected to a CFA with a separate sample of 11,106 students' clinical records from 52 institutions' counseling centers. The CFA resulted in a model with relatively good data fit. The study reported a comparative fit index of .97, a non-normed fit index of .97, an incremental fit index of .97, and a root-mean square error of approximation of .051 with a 90% C.I. (.051, .052). The EFA and CFA resulted in the 62-item, 8-factor CCAPS with the following subscales: Depression, Eating Concerns, Substance Use, Generalized Anxiety, Hostility, Social Anxiety, Family Distress, and Academic Distress.

These subscales have shown good internal consistency, reliability, and convergent validity in both clinical and non-clinical populations (Locke et al., 2011). In a study of 499 non-clinical students taking the CCAPS-62, Locke et al., (2011) found the internal consistency coefficients were sufficiently strong with Chronbach's  $\alpha$  for the depression subscale = .913, the anxiety subscale  $\alpha$  = .846, and the academic distress subscale  $\alpha$  = .781 (Locke et al., 2011). The CCAPS-62 technical manual by the Center for Collegiate Mental Health (2012) reports good 2-week test-retest reliability with a sample of 175 clinical and non-clinical students. The test-retest reliability was strong for the depression ( $r = .917$ ) and anxiety ( $r = .842$ ) subscales, and moderate for the academic distress ( $r = .759$ ) subscales. Locke et al., (2011) also tested for convergent validity between the CCAPS depression subscale with the Beck Depression Inventory, the CCAPS anxiety subscale with the Beck Anxiety Inventory, and the CCAPS academic distress subscale with the Academic Adjustment subscale of the Student Adaptation to College Questionnaire. Results from that

study found each subscale to be significantly related at the  $p=.01$  level to their referent assessment with the correlation coefficients for scales on depression  $r(494) = .721, p<.01$ ; anxiety  $r(493) = .643, p<.01$ , and academic anxiety  $r(497) = -.680, p<.01$ . The CCMH also offers a test of racial/ethnic cultural reliability that seems to offer good scores of reliability. In a related dissertation, (McClain, 2018) provided a more in depth analysis of the cultural validity of the CCAPS 62. McClain reports strong convergent validity for Asian American, Black/African American, and Hispanic students and found no evidence for differential item endorsement based on racial or ethnic group. Thus, the CCAPS-62 seems to offer a culturally and clinically valid approximation of student mental health symptoms.

The Standardized Data Set (SDS) is a collection of standardized survey items that includes a wide range of demographic and mental health treatment history items (“The CCMH Standardized Data Set (SDS),” 2016). The SDS collects gender, race/ethnicity, international student status, disability status, academic status, transfer status, the students’ college or school, first generation status, and history of mental health treatment, trauma, suicide attempts, and hospitalization.

## **ANALYSIS PLAN**

This study employed a series of fixed effects models to determine the effects of implementing the ECP while accounting for the effects of time and cluster (college). These analyses examined whether implementing an embedded counseling program reduces the severity of mental health symptoms in students. Additionally, the effect of the ECP on help-seeking in specific populations of college students was tested. The available data was clustered by college and aggregated by week. Structuring the available data in this manner allows for inferences to be made about the campus as a whole, rather than as individual students, years, or programs. Econometrics has established the benefit of using such models

when attempting to make causal inferences from existing panel data (Allison, 2005; Torres, 2010). These analyses will relate to the over-all campus-wide impact of the ECP by controlling for time, cluster, and even unobserved “fixed” confounders.

Fixed-effects models allow researchers to control for potential unobserved confounders, as long as their effects are constant or “fixed” over time. This is of significant benefit to researchers who may be limited to using pre-existing longitudinal data sets that cannot be retroactively expanded or added to. Such a method accounts for unmeasured covariates that are stable within a cluster but may vary across clusters. One such unmeasured covariate, mental health stigma, may be more prevalent in engineering students and lower in liberal arts students. Such a disparity may lead to engineering students waiting longer to seek help and presenting with worse mental health concerns than their peers in liberal arts. With an ordinary least squares regression (OLS) model, researchers may be tempted to conclude that enrolling in an engineering degree results in poorer student mental health, when it is the effect of stigma, rather than being an engineering student, that leads to worse mental health outcomes. By controlling for between cluster differences in unmeasured time-invariant covariates, researchers can more accurately estimate the effect of a treatment on the whole sample. This method ultimately allows for a less biased estimate of the effect of the treatment within clusters over time. For these reasons, Han and Grogan-Kaylor (2013) suggest that fixed effects regression models offer less biased parameter estimates due to the wider range of time-invariant confounders that can be subsumed in a fixed-effect model.

The following equation represents the statistical notation for a fixed effects linear regression model with cluster-robust standard errors that are clustered by college:

Equation 1.

$$Y_{jt} = \beta_1 EC_{jt} + \delta_j + \sigma_t + \mu_{jt}$$

Where:  $Y_{jt}$  = the average outcome of students seeking counseling while in college  $j$ , where  $j$  = College 1..., College  $j$ , during time  $t$  where  $t$  = Week 1... Week  $t$ . (e.g. Average rate of depression for Engineering students in week 12).

$\beta_1 EC_{jt}$  = the effect of the embedded counseling program in college  $j$  at time  $t$ .

$\delta_j$  = the fixed effect of college  $j$  on the outcome.

$\sigma_t$  = the fixed effect of time  $t$  (in weeks) on the outcome.

$\mu_{jt}$  = The random error term for each cluster  $j$  at time  $t$  (College).

The above statistical equation drives the statistical analysis of this study. The research questions, hypotheses and methods are as follows.

**Research Question 1:** What is the impact of implementing the ECP on college campus mental health help-seeking? The ECP is thought to increase help-seeking behavior and result in an early intervention for student help-seeking. If the ECP were to offer an early intervention, we would expect younger students, with less clinically severe symptoms, seeking help after the implementation of the ECP in a given college on a given week. If the ECP increases help-seeking behavior, we would expect more students seeking help after the program was implemented in a given college on a given week.

**Method 1.1.1:** To evaluate whether the ECP results in more help-seeking behavior on a campus, a fixed effects linear regression with cluster robust standard errors tested for an

increase in the frequency of student help-seeking for each college or school when the ECP was introduced. The model was estimated as in Equation 1 above, with the outcome  $Y_{jt}$  = the number of students in college  $j$ , during time  $t$ .

**Method 1.2.1:** To determine whether the ECP results in students seeking help earlier in their college career, a series of fixed effects linear regressions with cluster robust standard errors were conducted. The results presented in Table 11 estimate the effect of introducing the ECP to a college on the age of students presenting for services while controlling for time and the fixed effects of the college on students' age. These analyses were disaggregated by students' academic rank to disambiguate any inherent differences in deviation in age for students across academic rank (i.e. the age of freshman tends to deviate less from their mean than it does for the population of seniors, who may include non-traditionally aged (and much older) students returning to school after an extended absence. Additionally, disaggregation will mitigate any differences in the treatment's (ECP) magnitude of effect on age by academic year (e.g. freshman may have more contact with academic advisers and may be more influenced by the ECP than seniors). Furthermore, the total population of students seeking counseling tends to be over-represented by seniors. This over-representation may result in the effects of the ECP being skewed by the proportional imbalance in academic year, which further indicates disaggregation. The model was estimated as in Equation 1 above, with the outcome  $Y_{jt}$  = the average age of students in college  $j$ , during time  $t$ .

**Method 1.3.1 – 1.3.5:** To test whether implementing the ECP has an impact on students' initial clinical symptoms at intake, a series of fixed effects linear regressions with cluster-robust standard errors were conducted. These tested for the effect of introducing

the ECP on the severity of psychological symptoms for students while controlling for time and the fixed effects for the college or school. The symptoms tested include students' self-reported data on CCAPS-62 measures of depression, anxiety, social anxiety, academic distress, and suicidal ideation. These models were disaggregated by academic rank (freshman through seniors) for each of the symptom outcomes to disambiguate any inherent differences in the way students report psychological symptoms across academic years (e.g. seniors may be more academically anxious but generally less socially anxious than first year students). Additionally, the treatment (ECP) may have a different magnitude of effect on psychological symptoms by academic year (e.g. freshman may have more contact with academic advisers and may be more influenced by the ECP than seniors). Furthermore, the total population of students seeking counseling tends to be over-represented by seniors. This over-representation may result in the effects of the ECP being skewed by this imbalance in academic year, which further indicates disaggregation by academic year. The model was estimated as in Equation 1 above, with the outcome  $Y_{jt}$  = the average level of symptoms for students in college  $j$ , during time  $t$ .

**Research Question 2:** Does the ECP reduce barriers to mental health help-seeking in under-treated populations?

- a. Hypothesis: The implementation of the ECP will demonstrate an increase in help-seeking from students who identify as Asian American, Male, Multi-racial, Hispanic/Latino(a), international and first-generation students. This research question was indicated by the available literature on cultural factors related to clinical (Boone et al., 2011; Chang, Natsuaki, & Chen, 2013; J. E. Kim et al., 2016).



**Method 2.1.1 – 2.1.8:** To evaluate whether implementing the ECP had an effect on treatment seeking in under-treated populations, a series of fixed effects linear regressions with cluster-robust standard errors were performed. The populations to be inspected include Asian/Asian American students, Multi-racial and Multi-ethnic identified students, Hispanic/Latino(a) identified students, African American students, first generation students, international students, and Male-identified students. Instead of relying on frequencies of each student group by college, these models will use the difference in each groups' observed and expected proportion of students by cluster. Using a proportion rather than raw frequency prevents the large differences in total enrollment across clusters from being averaged together. If frequencies were used, the effects from larger clusters of students (i.e. Liberal Arts) would outweigh the effects for smaller clusters (i.e. Architecture). The model was estimated as in Equation 1 above, with the outcome  $Y_{jt}$  = the average difference in the observed and expected proportion of students from a given under-treated population in college  $j$ , during time  $t$ .

## Results

### PARTICIPANTS

Tables 1 through 10 detail the demographic differences for the 7,114 students who sought counseling from the ECP and CC by cluster between the 2013-2014 to 2017-2018 academic years. Demographic variables included age, race/ethnicity, gender, international student status, academic rank, first generation student status, history of mental health help-seeking, history of psychiatric medication use, and history of mental health hospitalization.

Table 1. Age of Students Seeking Help by Program and College.

College	ECP		CC	
	Mean Age	<i>SD</i>	Mean Age	<i>SD</i>
<b>1. Architecture</b>	22.0	1.7	22.4	1.6
<b>2. Business</b>	21.9	1.9	23.2	3.8
<b>3. Communication</b>	22.5	2.3	22.9	2.9
<b>4. Education</b>	22.4	2.4	23.4	2.5
<b>5. Engineering</b>	22.5	2.6	22.8	3.0
<b>6. Fine Arts</b>	21.8	5.0	22.7	2.9
<b>7. Liberal Arts</b>	22.3	2.6	23.3	3.3
<b>8. Natural Sciences</b>	22.6	2.6	23.0	2.9
<b>9. Nursing</b>	21.8	2.1	23.5	3.5
<b>10. Social Work</b>	22.8	1.7	23.3	2.9
<b>11. Undergraduate Studies</b>	21.0	1.4	21.8	2.3
<b>Total</b>	<b>22.2</b>	<b>2.5</b>	<b>23.0</b>	<b>3.1</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center. All ages are in years.

Table 1 presents the mean age of students in the ECP and CC programs by cluster. Students in the ECP were on average 22.2 years old ( $sd = 2.53$ ) while students in the CC were older on average 23.0 years old ( $sd = 3.06$ ).

Table 2. Rate of Medication Prescription for Students Seeking Help by Program and College.

College	Hx Rx in ECP				Hx Rx in CC			
	Never	Before College	After College	Both	Never	Before College	After College	Both
<b>1. Architecture</b>	78.3%	8.7%	13.0%	0.0%	78.3%	6.5%	13.0%	2.2%
<b>2. Business</b>	79.0%	9.3%	9.3%	2.5%	76.1%	6.7%	10.5%	6.7%
<b>3. Comm</b>	73.3%	9.3%	14.5%	2.9%	67.4%	11.2%	13.8%	7.7%
<b>4. Education</b>	92.7%	2.4%	2.4%	2.4%	70.7%	12.0%	11.3%	6.0%
<b>5. Engineering</b>	82.6%	7.6%	7.1%	2.7%	74.8%	6.0%	12.4%	6.7%
<b>6. Fine Arts</b>	77.8%	7.4%	9.3%	5.6%	74.5%	10.5%	12.6%	13.4%
<b>7. Liberal Arts</b>	69.6%	7.7%	14.0%	8.7%	63.8%	10.8%	15.6%	9.8%
<b>8. Nat Sciences</b>	81.3%	7.7%	7.0%	4.0%	68.8%	9.5%	13.1%	8.6%
<b>9. Nursing</b>	81.8%	6.1%	12.1%	0.0%	64.3%	12.5%	16.1%	7.1%
<b>10. Social Work</b>	70.8%	12.5%	8.3%	8.3%	63.0%	11.1%	11.1%	14.8%
<b>11. Ugrad Studies</b>	85.6%	8.7%	4.8%	1.0%	72.4%	14.1%	5.5%	8.0%
<b>Total</b>	<b>78.5%</b>	<b>8.1%</b>	<b>9.5%</b>	<b>3.9%</b>	<b>68.3%</b>	<b>9.8%</b>	<b>13.3%</b>	<b>8.6%</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center, Comm = Communications, Ugrad Studies = Undergraduate Studies, Nat Sciences = Natural Sciences, HX Rx = History of psychiatric medication prescription. Never = Students having never been prescribed a mental health medication. Before College = Students having been prescribed a mental health medication before enrolling in college but not after enrolling. After College = Students having been prescribed a mental health medication after enrolling in college but not before. Both = Students having been prescribed mental health medication before and after enrolling in college.

Table 2 presents the rate of students' history of being prescribed medication for mental health concerns by cluster and treatment program. On average, 21.5% of students in the ECP reported having ever been prescribed medication while 31.7% of students in the CC reported having been prescribed medication.

Table 3. History of Mental Health Counseling in Students Seeking Help by Program and College.

College	Hx MHC in ECP				Hx MHC in CC			
	Never	Before College	After College	Both	Never	Before College	After College	Both
<b>1. Architecture</b>	43.5%	17.4%	30.4%	8.7%	32.6%	21.7%	39.1%	6.5%
<b>2. Business</b>	56.4%	11.0%	25.2%	7.4%	47.5%	15.7%	27.2%	9.6%
<b>3. Communication</b>	45.4%	19.5%	25.3%	9.8%	36.2%	22.7%	26.4%	14.7%
<b>4. Education</b>	62.5%	7.5%	22.5%	7.5%	41.4%	12.5%	35.5%	10.5%
<b>5. Engineering</b>	51.6%	18.5%	26.1%	3.8%	49.6%	15.2%	25.6%	9.6%
<b>6. Fine Arts</b>	57.4%	20.4%	20.4%	1.9%	38.1%	23.7%	25.2%	12.9%
<b>7. Liberal Arts</b>	39.9%	19.2%	28.8%	12.0%	36.1%	21.2%	27.2%	15.5%
<b>8. Natural Sciences</b>	49.3%	12.5%	28.7%	9.6%	43.0%	17.9%	25.5%	13.6%
<b>9. Nursing</b>	60.6%	12.1%	21.2%	6.1%	44.6%	19.6%	25.0%	10.7%
<b>10. Social Work</b>	41.7%	20.8%	20.8%	16.7%	30.9%	16.4%	25.5%	27.3%
<b>11. Ugrad Studies</b>	67.9%	17.9%	11.3%	2.8%	44.7%	29.1%	15.1%	11.1%
<b>Total</b>	<b>50.8%</b>	<b>16.1%</b>	<b>25.1%</b>	<b>8.0%</b>	<b>40.7%</b>	<b>19.6%</b>	<b>26.2%</b>	<b>13.5%</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center, Ugrad Studies = Undergraduate Studies, Hx MHC =History of Mental Health Counseling.

Table 3 compares the relative differences in the rate of student’s history of mental health counseling between the ECP and the CC programs by cluster and overall. On average, 49.2% of students in the ECP reported having ever sought mental health counseling while 60.3% of students in the CC reported having ever sought mental health counseling.

Table 4. International Students Seeking Help by Program and College.

College	ECP		CC	
	<i>n</i>	Proportion International	<i>n</i>	Proportion International
<b>1. Architecture</b>	2	8.7%	0	0.0%
<b>2. Business</b>	6	3.7%	16	4.6%
<b>3. Communication</b>	4	2.3%	24	3.8%
<b>4. Education</b>	3	7.1%	5	3.3%
<b>5. Engineering</b>	12	6.3%	32	5.2%
<b>6. Fine Arts</b>	0	0.0%	6	2.2%
<b>7. Liberal Arts</b>	13	6.1%	77	4.3%
<b>8. Natural Sciences</b>	14	5.0%	59	3.6%
<b>9. Nursing</b>	2	5.9%	0	0.0%
<b>10. Social Work</b>	0	0.0%	6	10.7%
<b>11. Undergraduate Studies</b>	3	2.8%	3	1.5%
<b>Total</b>	<b>59</b>	<b>4.5%</b>	<b>228</b>	<b>3.9%</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center.

Table 4 compares the relative differences in the proportion of international students seeking help between the ECP and the CC programs. On average, 4.52% of students in the ECP identified as an international student while 3.93% of students in the CC identified as an international student.

Table 5. First Generation Students Seeking Help by Program and College.

College	ECP		CC	
	<i>n</i>	Proportion 1 <sup>st</sup> Generation	<i>n</i>	Proportion 1 <sup>st</sup> Generation
1. Architecture	0	0.0%	5	10.9%
2. Business	37	23.0%	80	23.7%
3. Communication	39	22.8%	132	21.2%
4. Education	11	27.5%	36	23.7%
5. Engineering	32	17.2%	89	14.5%
6. Fine Arts	15	27.8%	61	22.3%
7. Liberal Arts	72	35.1%	474	26.9%
8. Natural Sciences	75	27.7%	407	25.3%
9. Nursing	7	22.6%	13	22.8%
10. Social Work	12	50.0%	28	50.0%
11. Undergraduate Studies	40	37.7%	55	27.8%
<b>Total</b>	<b>340</b>	<b>26.7%</b>	<b>1380</b>	<b>24.1%</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center.

Table 5 presents the proportion of first-generation students seen for counseling in the ECP and CC programs by cluster and overall. On average, 26.7% of students in the ECP identified as a first-generation student while 24.1% of students in the CC identified as a first generation student.

Table 6. Male Students Seeking Help by Program and College.

College	ECP		CC	
	<i>n</i>	Mean	<i>n</i>	Mean
<b>1. Architecture</b>	0	0.0%	5	10.9%
<b>2. Business</b>	37	23.0%	80	23.7%
<b>3. Communication</b>	39	22.8%	132	21.2%
<b>4. Education</b>	11	27.5%	36	23.7%
<b>5. Engineering</b>	32	17.2%	89	14.5%
<b>6. Fine Arts</b>	15	27.8%	61	22.3%
<b>7. Liberal Arts</b>	72	35.1%	474	26.9%
<b>8. Natural Sciences</b>	75	27.7%	407	25.3%
<b>9. Nursing</b>	7	22.6%	13	22.8%
<b>10. Social Work</b>	12	50.0%	28	50.0%
<b>11. Undergraduate Studies</b>	40	37.7%	55	27.8%
<b>Total</b>	<b>523</b>	<b>40.5%</b>	<b>2113</b>	<b>36.4%</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center.

Table 6 presents the proportion of male-identified students who sought counseling from the ECP and CC programs by college. On average, 40.5% of students in the ECP identified as male while 36.4% of students in the CC identified as male.

Table 7. Rate of History of Mental Health Hospitalization in Students Seeking Help by Program and College.

College	Hx Hosp in ECP		Hx Hosp in CC	
	Never	Ever	Never	Ever
<b>1. Architecture</b>	8 (80.0%)	2 (20.0%)	28 (96.6%)	1 (3.4%)
<b>2. Business</b>	86 (92.5%)	7 (7.5%)	184 (88.5%)	24 (11.5%)
<b>3. Communication</b>	80 (94.1%)	5 (5.9%)	329 (82.0%)	72 (18.0%)
<b>4. Education</b>	22 (91.7%)	2 (8.3%)	77 (81.1%)	18 (19.0%)
<b>5. Engineering</b>	95 (94.1%)	6 (5.9%)	291 (86.4%)	46 (13.7%)
<b>6. Fine Arts</b>	30 (90.9%)	3 (9.1%)	148 (82.2%)	32 (17.8%)
<b>7. Liberal Arts</b>	111 (90.2%)	12 (9.8%)	871 (82.2%)	189 (17.8%)
<b>8. Natural Sciences</b>	142 (91.6%)	13 (8.4%)	839 (85.5%)	142 (14.5%)
<b>9. Nursing</b>	16 (100.0%)	0 (0.0%)	31 (79.5%)	8 (20.5%)
<b>10. Social Work</b>	15 (93.8%)	1 (6.3%)	22 (64.7%)	12 (35.3%)
<b>11. Undergraduate Studies</b>	65 (92.9%)	5 (7.1%)	102 (81.0%)	24 (19.0%)
<b>Total</b>	<b>670 (92.3%)</b>	<b>56 (7.7%)</b>	<b>2922 (83.7%)</b>	<b>568 (16.3%)</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center, Hx Hosp = History of Hospitalization for a mental health concern.

Table 7 presents the proportion of students who reported a history of hospitalization for a mental health concern between the ECP and CC programs by cluster. On average, 7.7% of students in the ECP reported having been hospitalized for mental health reasons compared to 16.3% of students in the CC program.



Table 8. Academic Year for Students Seeking Help by Program and College.

College	ECP				CC			
	1st Yr	2nd Yr	3rd Yr	4th Yr +	1st Yr	2nd Yr	3rd Yr	4th Yr +
<b>1. Architecture</b>	17.4%	21.7%	26.1%	34.8%	19.6%	28.3%	34.8%	17.4%
<b>2. Business</b>	28.7%	18.9%	28.0%	24.4%	21.6%	28.8%	19.9%	29.7%
<b>3. Communication</b>	21.7%	28.6%	20.0%	29.7%	18.8%	29.1%	19.4%	32.6%
<b>4. Education</b>	21.4%	35.7%	9.5%	33.3%	11.2%	23.7%	25.0%	40.1%
<b>5. Engineering</b>	19.7%	22.3%	27.7%	30.3%	23.3%	24.6%	27.6%	24.6%
<b>6. Fine Arts</b>	34.5%	21.8%	23.6%	20.0%	24.5%	24.2%	27.8%	23.5%
<b>7. Liberal Arts</b>	22.9%	25.7%	26.6%	24.8%	16.3%	28.6%	22.4%	32.8%
<b>8. Natural Sciences</b>	23.0%	24.5%	23.4%	29.1%	21.3%	27.0%	23.0%	28.7%
<b>9. Nursing</b>	11.8%	41.2%	20.6%	26.5%	25.0%	32.1%	28.6%	14.3%
<b>10. Social Work</b>	4.2%	16.7%	16.7%	62.5%	12.5%	39.3%	23.2%	25.0%
<b>11. Ugrad Studies</b>	65.4%	2.8%	30.8%	0.9%	56.3%	9.5%	30.7%	3.5%
<b>Total</b>	<b>26.2%</b>	<b>22.9%</b>	<b>24.7%</b>	<b>26.2%</b>	<b>20.7%</b>	<b>26.9%</b>	<b>23.4%</b>	<b>28.9%</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center, Ugrad Studies = Undergraduate Studies.

Table 8 presents the proportion of students in each academic rank between the ECP and CC programs by cluster. The largest difference between the ECP and CC on the proportion of academic years seen for counseling was in first year students. On average, 26.2% of students in the ECP were first year students compared to 20.7% of students in the CC program. The larger proportion of first year students in the ECP supports the hypothesis that the ECP reaches younger students and may indicate an early intervention effect. The ECP had proportionally fewer sophomores (22.9%) and seniors (26.2%) than the CC with 26.9% and 28.9% respectively. The ECP had proportionally more juniors (24.7%) enrolled in counseling than the CC (23.4%).

Table 9. Race and Ethnicity of Students Seeking Help by College in the ECP.

College	ECP					
	Asian	Black	Hispanic	Multi-Racial	White	Other
<b>1. Architecture</b>	8.7%	17.4%	0.0%	26.1%	39.1%	8.7%
<b>2. Business</b>	25.0%	7.9%	5.5%	23.8%	32.9%	4.9%
<b>3. Communication</b>	4.0%	5.1%	6.3%	25.7%	55.4%	3.4%
<b>4. Education</b>	7.1%	4.8%	11.9%	31.0%	38.1%	7.1%
<b>5. Engineering</b>	29.1%	4.8%	3.7%	16.4%	39.7%	6.3%
<b>6. Fine Arts</b>	5.5%	3.6%	7.3%	36.4%	45.5%	1.8%
<b>7. Liberal Arts</b>	10.7%	4.2%	11.7%	34.1%	33.2%	6.1%
<b>8. Natural Sciences</b>	24.8%	6.5%	11.2%	28.1%	23.7%	5.8%
<b>9. Nursing</b>	17.6%	8.8%	0.0%	35.3%	29.4%	8.8%
<b>10. Social Work</b>	12.5%	4.2%	8.3%	50.0%	25.0%	0.0%
<b>11. Undergraduate Studies</b>	14.0%	11.2%	14.0%	34.6%	23.4%	2.8%
<b>Total</b>	<b>17.4%</b>	<b>6.3%</b>	<b>8.4%</b>	<b>28.0%</b>	<b>34.8%</b>	<b>5.1%</b>

*Note:* ECP = Embedded Counseling Program. CC = Counseling Center.

Table 9 presents the proportion of students in each racial/ethnic categories of help-seeking in ECP by cluster and race/ethnicity category.

Table 10. Race and Ethnicity of Students Seeking Help by College in the CC Program.

College	CC					
	Asian	Black	Hispanic	Multi-Racial	White	Other
<b>1. Architecture</b>	19.6%	4.3%	2.2%	26.1%	47.8%	0.0%
<b>2. Business</b>	25.6%	5.5%	6.9%	21.6%	34.8%	5.8%
<b>3. Communication</b>	8.8%	7.8%	9.4%	24.7%	45.1%	4.3%
<b>4. Education</b>	9.2%	11.8%	11.1%	26.1%	37.3%	4.6%
<b>5. Engineering</b>	22.6%	2.9%	5.7%	17.3%	45.1%	6.5%
<b>6. Fine Arts</b>	5.8%	4.3%	7.9%	28.4%	50.0%	3.6%
<b>7. Liberal Arts</b>	12.6%	6.0%	8.8%	24.8%	42.5%	5.3%
<b>8. Natural Sciences</b>	21.8%	5.6%	8.0%	23.9%	35.6%	5.1%
<b>9. Nursing</b>	12.3%	5.3%	3.5%	21.1%	57.9%	0.0%
<b>10. Social Work</b>	5.4%	14.3%	12.5%	21.4%	33.9%	12.5%
<b>11. Undergraduate Studies</b>	12.1%	5.5%	8.5%	34.2%	37.2%	2.5%
<b>Total</b>	<b>16.2%</b>	<b>5.8%</b>	<b>8.1%</b>	<b>24.0%</b>	<b>40.8%</b>	<b>5.0%</b>

*Note:* CC = Counseling Center.

Table 10 presents the proportion of students in each racial/ethnic categories of help-seeking in CC by cluster and race/ethnicity category.

**RESEARCH QUESTION 1:** What are the effects of implementing the ECP on college campus mental health help-seeking?

**Results 1.1.1: Effects on Student Help-Seeking by College and Time**

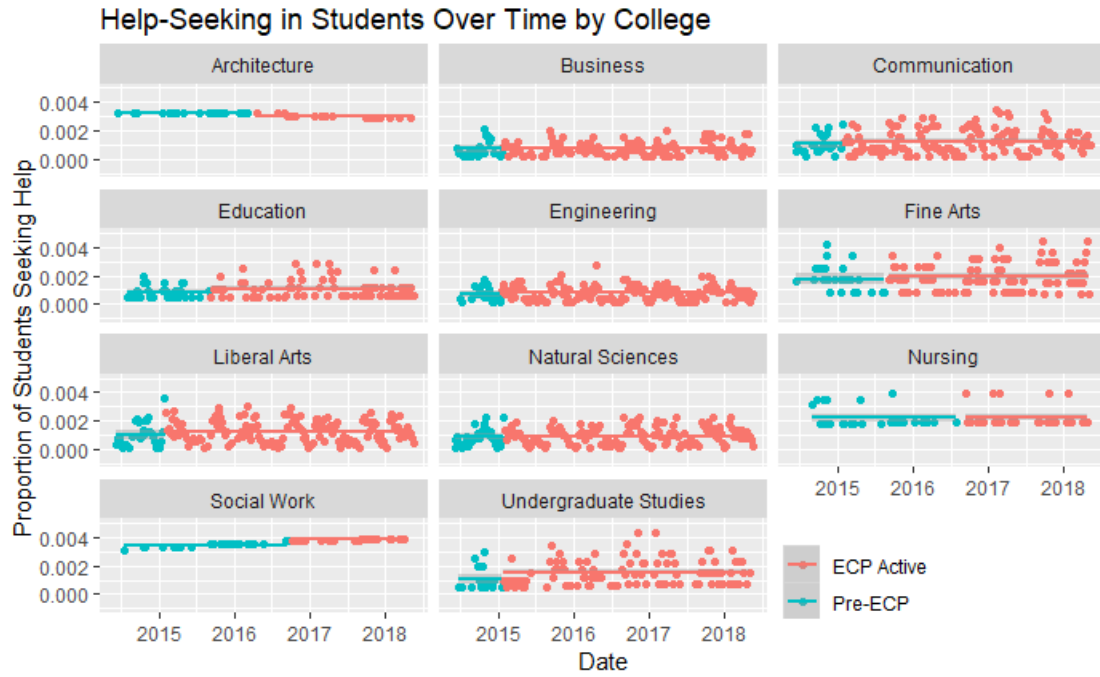
Table 11. Estimated Effects of Treatment on Frequency of Students Seeking Help with Fixed Effects by College and Week.

Estimate	Cluster s.e.	95% C.I.	Significance	R-Squared Adj.
0.0004	0.00029	[-0.0002, 0.001]	P= 0.152	0.6108

Note: Estimate = the effect of the ECP on the outcome, Cluster s.e. = the cluster-robust standard error, C.I. = Confidence Interval, \*\*\*p < .001. \*\*p < .01. \*p < .05.

Table 11 presents the results of the fixed effects linear regression of the estimated effect of the ECP program on the frequency of help-seeking within a given college during a given week. A fixed effects linear regression suggests no significant ( $p > .05$ ) effect of implementing the ECP on the average proportion of help-seeking in students for a given college and in a given week. This suggests no increase in the rate of help-seeking as the result of the ECP, which may have implications for any observed significant effects of the ECP on student outcomes. Figure 4 shows the proportion of students enrolled in each cluster that sought help for the first time before and after the implementation of the ECP.

Figure 4. Rate of Help-seeking Overtime by College.



### Results 1.2.1: Effects on Age at Intake

Table 12. Estimated Effects of Treatment on Age at Intake with Fixed Effects by College and Week.

Academic Yr	Estimate	Cluster s.e.	95% C.I.	Significance	R-Squared Adj.
First Year	0.1418	0.1391	[-0.52, 0.17]	0.308	0.8616
Second Year	0.2358	0.1317	[-0.02, 0.49]	0.074	0.7811
Third Year	0.0772	0.3750	[-0.66, 0.81]	0.837	0.2472
Fourth+ Year	-0.1486	0.3789	[-0.89, 0.59]	0.695	0.2736

Note: Estimate = the effect of the ECP on the outcome, Cluster s.e. = the cluster-robust standard error, C.I. = Confidence Interval, \*\*\*p < .001. \*\*p < .01. \*p < .05.

Table 12 presents the results of four fixed effects linear regressions estimating the effect of ECP on the age (in years) of students presenting for counseling in a given week and college and disaggregated by academic year. This series of fixed effects linear regressions suggests there are no significant effects ( $p > .05$ ) of implementing the ECP on the average age of students seeking help in a given college for a given week in each of the academic ranks. This finding fails to support the hypothesis that implementing the ECP was expected to lead to younger students seeking counseling.

### Results 1.3.1: Effects on Depression at Intake

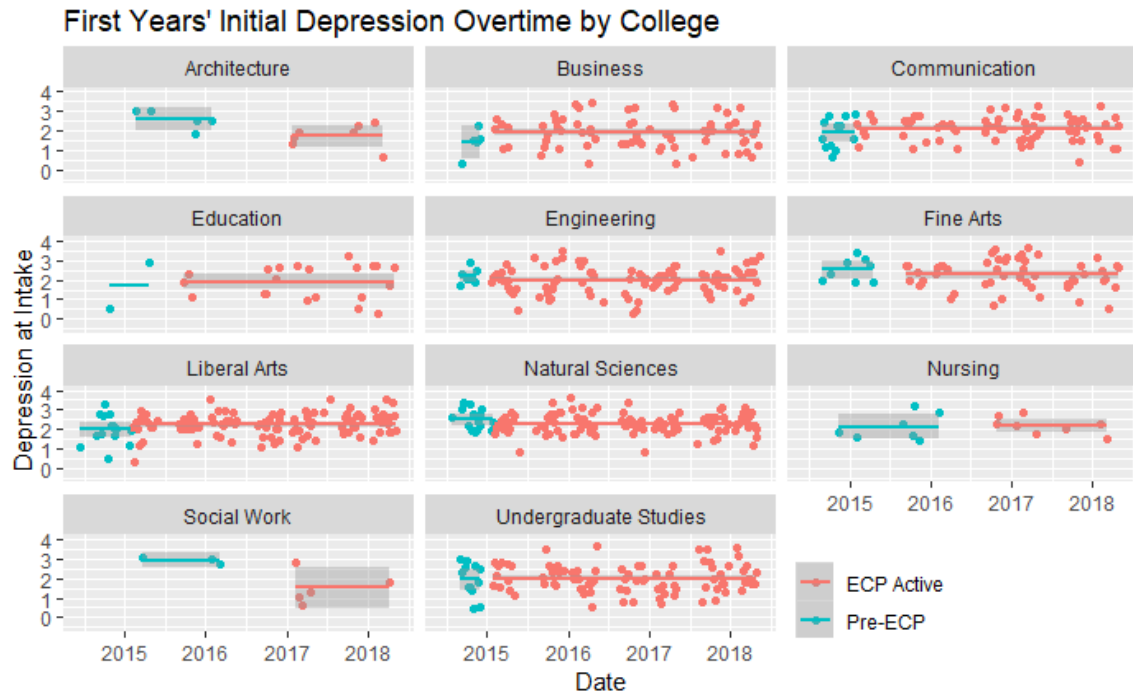
Table 13. Estimated Effects of Treatment on Depression at Intake with Fixed Effects by College and Week.

Academic Yr	Estimate	Cluster s.e.	95% C.I.	Significance	R-Squared Adj.
First Year	-0.4816	0.1924	[-0.86, -0.10]	0.0126*	0.0579
Second Year	-0.1857	0.2325	[-0.64, 0.27]	0.425	0.0316
Third Year	0.0497	0.1740	[-0.29, 0.39]	0.775	0.1042
Fourth+ Year	-0.06701	0.1330	[-0.33, 0.19]	0.614	0.0025

Note: Estimate = the effect of the ECP on the outcome, Cluster s.e. = The cluster-robust standard error, C.I. = Confidence Interval, \*\*\*p < .001. \*\*p < .01. \*p < .05.

Table 13 presents the results of four fixed effects linear regressions estimating the effect of ECP on the depression of students presenting for counseling in a given week and college and disaggregated by academic year. A moderate and statistically significant and negative effect ( $p < .05$ ) was observed from the treatment on the depression of first year students seeking mental healthcare in a given week in a given college. Estimate for  $\beta_1 = -0.48$ , SE = 0.19, 95% CI [-0.86, -0.10], R-Squared Adjusted = 0.06, which suggests the fixed effects model accounts for a small percentage of the total variance of depression in a given week in a given college for first year students. A medium to large effect size of -0.71 was estimated using Cohen's d. No significant effects for the other academic ranks were observed. These findings support the hypothesis that the ECP was expected to result in the reduction of the initial severity of symptoms in first year students but fails to support the hypothesis for the other academic groups. Figure 5 presents the rate of initial depression in first year students over time by college before and after the ECP was implemented.

Figure 5. First Years' Initial Depression Overtime by College.





### Results 1.3.2: Effects on Anxiety at Intake

Table 14. Estimated Effects of Treatment on Anxiety at Intake with Fixed Effects by College and Week.

Academic Yr	Estimate	Cluster s.e.	95% C.I.	Significance	R-Squared Adj.
First Year	-0.1749	0.1784	[-0.52, 0.17]	0.327	0.0034
Second Year	-0.2768	0.1765	[-0.62, 0.69]	0.117	0.0693
Third Year	-0.2348	0.1210	[-0.47, 0.002]	0.053	0.0499
Fourth+ Year	-0.1131	0.1180	[-0.34, 0.19]	0.338	0.0103

Note: Estimate = the effect of the ECP on the outcome, Cluster s.e. = The cluster-robust standard error, C.I. = Confidence Interval, \*\*\*p < .001. \*\*p < .01. \*p < .05.

Table 14 presents the results of four fixed effects linear regressions estimating the effect of ECP on the anxiety of students presenting for counseling in a given week and college and disaggregated by academic year. A series of fixed effects linear regressions suggests there are no significant effects ( $p > .05$ ) of implementing the ECP on the average level of anxiety for students seeking help in a given college for a given week. These analyses fail to support the hypothesis that the implementation of the ECP was expected to reduce the initial severity of students' anxiety.

### Results 1.3.3: Effects on Suicidal Ideation at Intake

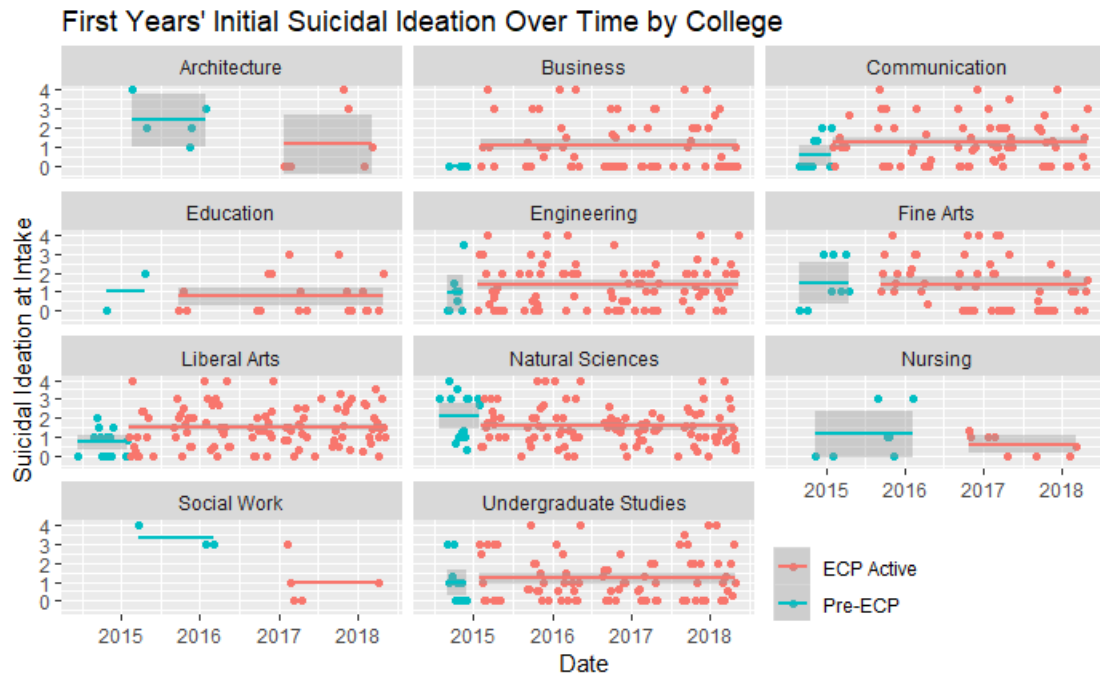
Table 15. Estimated Effects of Treatment on Initial Suicidal Ideation at Intake with Fixed Effects by College and Week.

Treatment	Estimate	Cluster s.e.	95% C.I.	Significance	R-Squared Adj.
First Year	-0.8043	0.2184	[-1.23, -0.38]	<0.001***	0.0641
Second Year	-0.3350	0.3533	[-1.03, 0.36]	0.343	0.0453
Third Year	0.08508	0.19861	[-0.30, 0.47]	0.669	0.0880
Fourth+ Year	-0.2326	0.2119	[-0.65, 0.18]	0.273	0.0388

Note: Estimate = the effect of the ECP on the outcome, Cluster s.e. = The cluster-robust standard error, C.I. = Confidence Interval, \*\*\*p < .001. \*\*p < .01. \*p < .05.

Table 15 presents the results of four fixed effects linear regressions estimating the effect of the ECP on the suicidal ideation of students presenting for counseling in a given week and college and disaggregated by academic year. A statistically significant and negative effect ( $p < .001$ ) was observed as a result of the treatment on the level of suicidal ideation for first year students seeking mental healthcare in a given week in a given college. Estimate for  $\beta_1 = -0.80$ , SE = 0.22, 95% CI [-1.23, -0.38], R-Squared Adjusted = 0.06, which suggests the fixed effects model accounts for a small percentage of the total variance of suicidal ideation in a given week in a given college for first year students. A medium to large effect size of -0.69 was estimated using Cohen's d. No significant effects for the other academic ranks were observed. Figure 6 presents the first years' initial suicidal ideation overtime by college before and after the implementation of the ECP.

Figure 6. First Years' Initial Suicidal Ideation Overtime by College.



### Results 1.3.4: Effects on Academic Distress

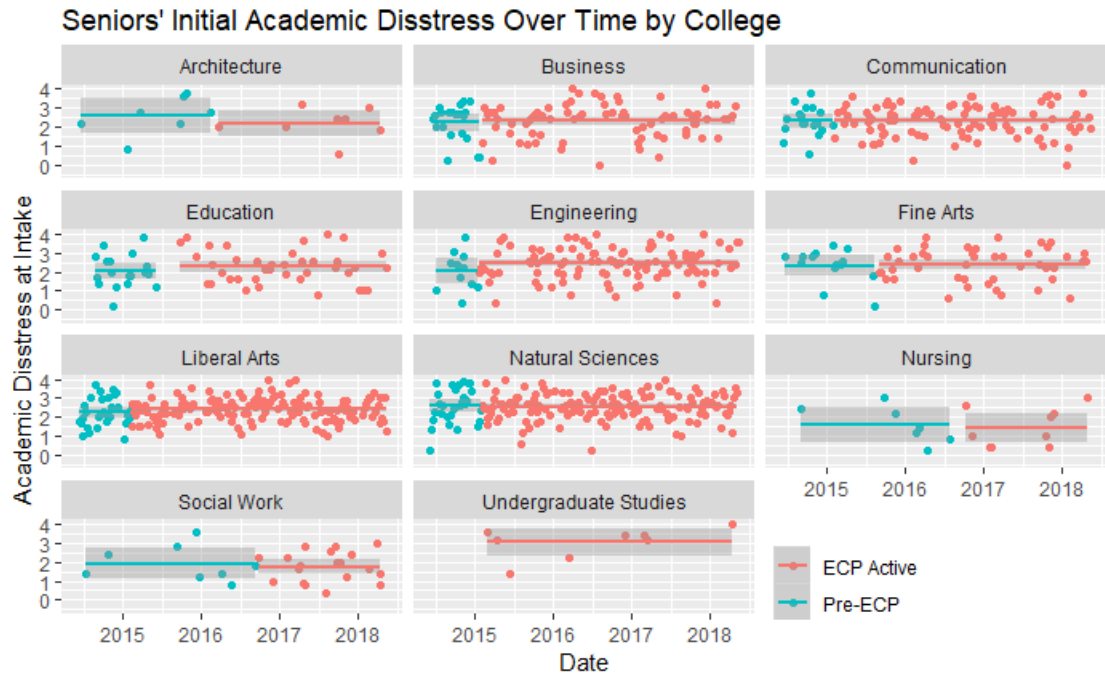
Table 16. Estimated Effects of Treatment on Initial Academic Distress at Intake with Fixed Effects by College and Week.

Treatment	Estimate	Cluster s.e.	95% C.I.	Significance	R-Squared Adj.
First Year	-0.0978	0.27452	[-0.64, 0.44]	0.722	0.0596
Second Year	0.1661	0.1650	[-0.16, 0.49]	0.314	0.0957
Third Year	0.1173	0.1552	[-0.19, 0.42]	0.450	0.0821
Fourth+ Year	-0.2868	0.1216	[-0.53, -0.05]	0.019*	0.1397

Note: Estimate = the effect of the ECP on the outcome, Cluster s.e. = The cluster-robust standard error, C.I. = Confidence Interval, \*\*\*p < .001. \*\*p < .01. \*p < .05.

Table 16 presents the results of four fixed effects linear regressions estimating the effect of ECP on the academic distress of students presenting for counseling in a given week and college and disaggregated by academic year. A statistically significant negative effect ( $p < .001$ ) was observed as a result of the treatment on the level of academic distress for fourth year students seeking mental healthcare in a given week in a given college. Estimate for  $\beta_1 = -0.29$ , SE = 0.22, 95% CI [-0.53, -0.05], R-Squared Adjusted = 0.06, which suggests the fixed effects model accounts for a small percentage of the total variance of academic distress in a given week in a given college for first year students. A small effect size of -0.35 was estimated using Cohen's d. No significant effects for the other academic ranks were observed. Figure 7 presents seniors' initial academic distress overtime by college before and after the implementation of the ECP.

Figure 7. Seniors' Initial Academic Distress Overtime by College.



### Results 1.3.5: Effects on Social Anxiety at Intake

Table 17. Estimated Effects of Treatment on Initial Social Anxiety at Intake with Fixed Effects by College and Week.

Treatment	Estimate	Cluster s.e.	95% C.I.	Significance	R-Squared Adj.
First Year	-0.3137	0.2664	[-0.84, 0.21]	0.240	0.0262
Second Year	-0.05243	0.25725	[-0.56, 0.45]	0.839	0.0214
Third Year	0.01034	0.22624	[-0.43, 0.45]	0.964	-0.0172
Fourth+ Year	0.2962	0.2051	[-0.11, 0.70]	0.149	0.0421

Note: Estimate = the effect of the ECP on the outcome, Cluster s.e. = The cluster-robust standard error, C.I. = Confidence Interval, \*\*\*p < .001. \*\*p < .01. \*p < .05.

Table 17 presents the results of four fixed effects linear regressions estimating the effect of ECP on the social anxiety of students presenting for counseling in a given week and college and disaggregated by academic year. A series of fixed effects linear regressions suggests there are no significant effects ( $p > .05$ ) of implementing the ECP on the average level of social anxiety for students seeking help in a given college for a given week. These analyses fail to support the hypothesis that the implementation of the ECP was expected to reduce the initial severity of students' social anxiety.

**Research Question 2:** Does the ECP reduce barriers to mental health help-seeking in under-treated populations?

**Results 2.1.1 – 2.1.7: Effects on Treatment-Seeking in Under-Treated Student Populations by College and Time**

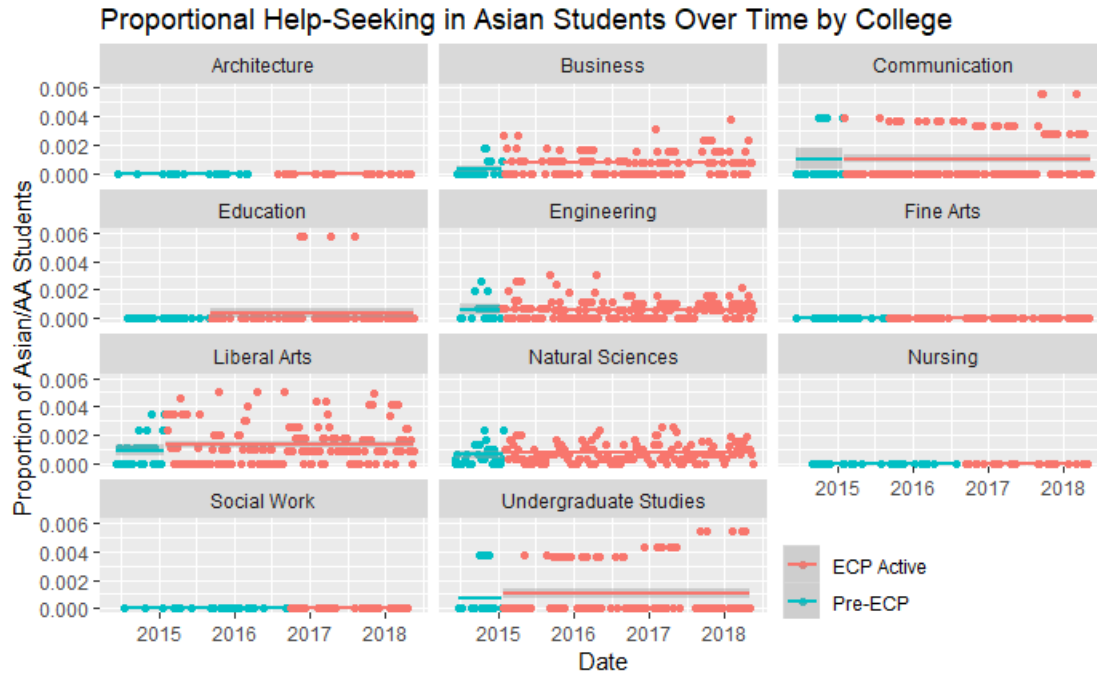
Table 18. Estimated Effects of ECP on Proportion of Students Seeking Treatment by Group with Fixed Effects by College and Week.

Group	Estimate	Cluster s.e.	95% C.I.	Significance	R-Squared Adj.
Asian/AA	0.002	0.0008	[-0.0002, 0.003]	0.083 <sup>^</sup>	0.0445
Black	-0.002	0.0020	[-0.006, 0.002]	0.402	0.0117
Hispanic	-0.0002	0.0002	[-0.0005, 0.0001]	0.234	0.0460
Multi-Racial	0.0371	0.0376	[-0.0365, 0.1106]	0.324	0.2115
White	-5.1 e-5	9.968e-05	[-0.0002, 0.0001]	0.611	0.1951
Male	0.001	0.0016	[-0.002, 0.004]	0.398	0.0952
International	0.005	0.0024	[0.0001, 0.009]	0.0449 *	0.0380
First-Gen	1.3 e-06	0.0006	[-0.0017, 0.0011]	0.998	0.1691

Note: Asian/AA = Asian/ Asian American, First-Gen = First Generation Students, Estimate = the effect of the ECP on the outcome, Cluster s.e. = The cluster-robust standard error, C.I. = Confidence Interval, \*\*\*p < .001. \*\*p < .01. \*p < .05. <sup>^</sup>p < .1

Table 18 presents the results of the fixed effects linear regressions estimating the effect of ECP on the proportion of students from various under-treated populations seeking counseling in a given week and college. The ECP is estimated to have a significant effect on the rate of Asian and Asian American students seeking help at a p < .10 level. The estimated effect size for this group suggests the implementation of the ECP resulted in 0.2% more Asian/Asian American-identified students seeking counseling in a given week and college. A medium to small effect size of .31 was calculated using Cohen’s d. See figure 8 for a visual representation of this effect on Asian and Asian American help-seeking over time by college.

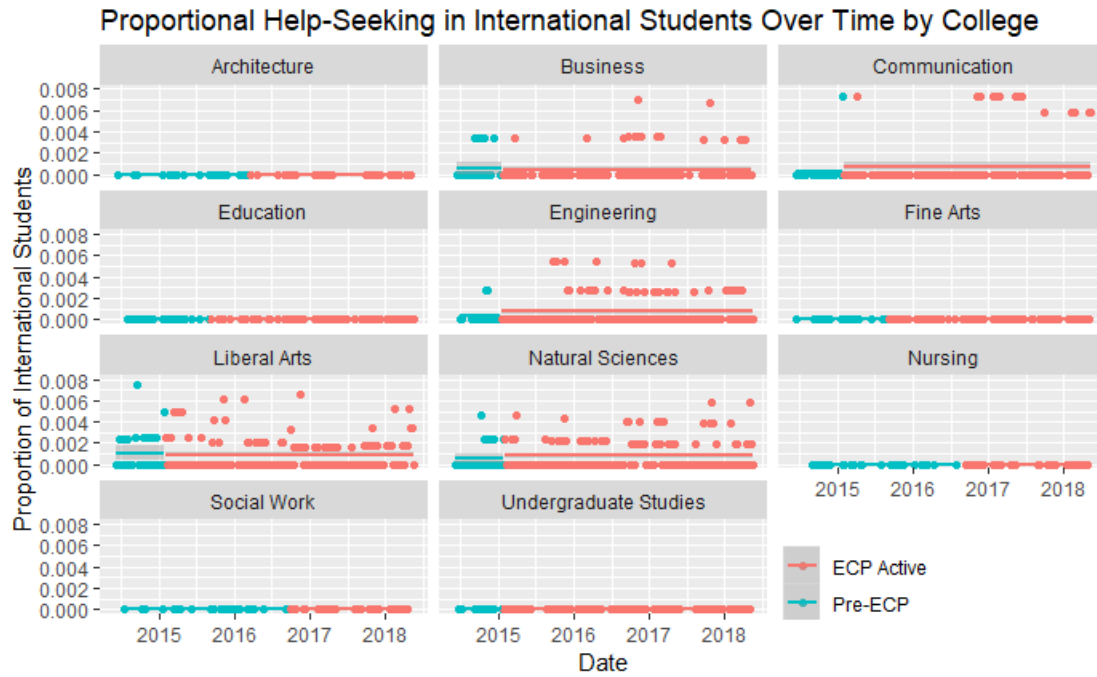
Figure 8. Proportional Help-Seeking in Asian/Asian Americans Over Time by College.



The implementation of the ECP was estimated to result in a significant increase in the proportion of international students at a  $p < .05$  level. The estimated effect size suggests the implementation of the ECP resulted in 0.5% of international students on campus deciding to seek counseling for a given week and college. A medium effect size of 0.58 was estimated for the effect of the implementation of the ECP on international student help-seeking using Cohen's  $d$ . See Figure 9 for a visual representation of this effect on International student help-seeking over time by college.



Figure 9. Proportional Help-Seeking in International Students Over Time by College.



The lack of significant effect on Black/African American, Hispanic/Latino, male, first generation, and Multi-racial students suggests the ECP alone did not increase the help-seeking rates in these populations.

## **Discussion**

The primary aim of this project was to study the effects of embedding counseling professionals in academic settings on a college campus. An exploration of the descriptive statistics of student demographics in the ECP and the CC programs offered insight into the differences in the types of students these programs attract. While such comparisons help provide insight into the features of the ECP, the primary research questions were related to the campus-wide impact of the ECP rather than comparing the ECP with a traditional counseling center. The results of these analyses offer insights into the impact (or lack of impact) of embedding counselors on students' help-seeking, initial severity of symptoms, and the demographic features of students seeking counseling on campus. The following discussion is organized by research question and integrated within the existing literature with an emphasis on clinical and programmatic implications.

### **ECP EFFECTS ON SYMPTOMS**

The implementation of the ECP was associated with a significant effect on the initial severity of suicidal ideation in first year students at intake. The estimated magnitude of ECP's effect on first year students' suicidal ideation was substantial. Considering that the CCAPS suicidal ideation item is scored on a 0-4 point scale with a  $M = 1.21$ ,  $SD = 1.38$ , a  $-0.80$  estimated effect is noteworthy. This can be interpreted that for a given cluster in a given week, implementing the ECP resulted in an average 0.80 campus-wide reduction in the suicidal ideation of first year students seeking help on campus. A standardized mean effect of  $-0.69$  was calculated using Cohen's  $d$ . This amounts to a medium sized effect of the ECP on first year students' average depression at intake.

The implementation of the ECP was also associated with a significant effect on the initial severity of depression for first year student at intake. The estimated magnitude of

the ECP's effect on first year's initial depression was substantial, albeit smaller than the effect for suicidal ideation. On a 0-4 point scale with a mean depression score  $M = 2.10$ ,  $SD = 0.77$ ,  $\alpha = .84$ , the ECP was estimated to have a  $-0.48$  effect on first year students' depression. This can be interpreted that for a given cluster in a given week, implementing the ECP was associated with a  $0.48$  reduction in the depression of first year students seeking help on campus. A standardized mean effect of  $-0.71$  was calculated using Cohen's  $d$ . This amounts to a medium to large sized effect of the ECP on first year students' average depression at intake.

The ECP resulted in lower initial campus-wide depression and SI scores in first year students at intake but not for other academic ranks. This indicates that the ECP may be effective at helping less clinically severe first-year students access therapy on campus. Considering that 26.2% of all ECP undergraduate clients were first years (compared to the CC's 20.7%), it seems that the ECP is more effective at reaching first year students and is doing so with less clinically severe students. The ECP seems to reduce the barriers to help-seeking for first year students and possibly serves as an early intervention for depression and suicidal ideation in first year college students.

Future research may benefit from considering the reasons for these observed effects. It is possible that first year students benefit from the increased ease of access to embedded counselors. The embedded model may increase the visibility of counseling services for newer students. Increasing exposure for first years may increase student knowledge of available services. Reducing the distance students need to travel for services may also increase their perceived behavioral control to find help while still adjusting to a new physical environment.

The implementation of the ECP was associated with a significant reduction of senior students' mean academic distress. On a 0-4 point scale with a mean academic

distress score  $M = 2.31$ ,  $SD = 0.97$ ,  $\alpha = .82$ , the ECP's  $-0.35$  effect size on seniors academic distress was estimated using Cohen's  $d$ . This effect size amounts to a small but notable effect. It is possible that placing a counselor in academic residence increases seniors' use of counseling for academic concerns earlier and before their academic-related symptoms become more severe. The exact reasons for the observed effect of ECP on academic distress occurring only in seniors rather than in all academic ranks are impossible to discern with the available data. Future research on the ECP model may benefit from exploring mixed methods or qualitative research designs related to students' decisions to seek help related to academic distress. That the ECP counselors are physically located in academic resource centers may influence differences in academic distress by academic rank if certain academic ranks are more likely to use academic services.

Other ECP effects on CCAPS subscales of anxiety and social anxiety were non-significant. The lack of program effects on these outcomes may be the result of several limitations of the current study. The first is a lack of power due to the small number of clusters available for analysis. The use of fixed effects linear regression with clustered standard errors relies on the number of available clusters to derive statistical power for the analyses. Even a relatively small effect on a large college campus can have important implications for policy and evaluation efforts. Unfortunately, the small number of clusters makes detecting small (but still important) effects less likely.

Additionally, at the start of the current study's data collection, students seemed to be coming to campus already highly anxious (American College Health Association, 2013). The majority of anxiety disorders develop in childhood, it is possible that the college context is too late for an early intervention in anxiety disorders (American Psychiatric Association & American Psychiatric Association, 2013). Future data collection on the etiology of student's concerns at intake would help researchers determine the onset of

symptoms and the impact of programs like the ECP. Future studies may also benefit from including preexisting or new survey data on the non-clinical campus population to determine if program effects.

### **ECP Effects on Previous Experience with Mental Health Help-Seeking**

Students who sought counseling from the ECP reported having less frequent histories of mental health hospitalization, psychiatric medication use, and previous counseling than students seeking services at the CC. While it may be tempting to conclude that the students seeking services from the ECP are generally more well than those in the CC program, this may not be the case. Students in the ECP may have had similarly serious mental health concerns as the students in the CC but could have had fewer resources or support to seek medication, counseling, or hospitalization. The ECP may be reaching more well students (and thus intervening with a different group or possibly earlier with the same group). Alternatively, it could be accessing previously under-treated populations that went untreated until the ECP was available. Either way, the ECP appears to offer a benefit to campuses, but further research is warranted to determine whether this benefit is reaching more well students and/or reaching previously untreated students. Future studies may benefit from differentiating students' history and on-set of mental health concerns alongside their ability to access mental health services. Such research could expand campuses' understanding of whether programs like the ECP offer early intervention and/or reach different populations of students.

One feature of the alternative counseling programs is that they can often offer therapy with different models that have fewer clinical constraints when compared to traditional counseling center models (i.e. more sessions available or different physical

environments for students to receive therapy). These differences can make comparing the effects of traditional and non-traditional programs difficult. Randomizing students into treatment groups/models presents an ethical and logistical challenge for counseling centers at universities, making the gold-standard randomized clinical trial virtually impossible. One possible way to navigate this challenge moving forward is through the use of pilot studies and on-going intentional program evaluation efforts that collect scientifically useful data that can facilitate applied research.

### **ECP EFFECTS ON OVERALL HELP-SEEKING**

A fixed effects linear regression with clustered standard error failed to demonstrate a statistically significant effect of the ECP on rates of overall student help-seeking. This is not surprising as the counseling center that implemented the ECP is often at capacity for counseling sessions resulting in students being offered intake sessions up to 3 weeks after making an initial request for services. According to the AUCCCD annual survey, counseling centers are often filled to capacity with an average wait time of 7 business days ( $SD = 5.9$ ) between scheduling and intake (The Association for University and College Counseling Center Directors, 2016). The implementation of the ECP did not result in an increased supply of therapy appointments, just a relocation of those appointments. Changing the location of counseling services rather than the number of sessions provided failed to demonstrate a positive effect on the number of students seeking help. Importantly, no significant negative effect on the number of sessions was observed either. This suggests students did not have trouble finding and enrolling in the ECP services. Embedding counselors will likely not increase the number of students seeking help, but neither is there evidence to suggest it would reduce the number of students being seen for services. While

the number of students seen for services did not change as the result of the ECP, effects on the demographic and clinical features of help-seekers were observed.

### **EMBEDDED COUNSELING AND UNDERTREATED GROUPS**

Increasing the rate of help-seeking within under-treated groups of students is a part of the mission and vision of clinically-oriented prevention and outreach programs like the ECP. Golightly et al., (2017) suggest prevention and outreach efforts are well served by using clinicians as mental health liaisons when serving in embedded counseling roles. The relationship providers have with their community is a key feature in the ECP model and may contribute to the positive results observed in some of the under-treated student groups. The reasons behind these observed effects are difficult to determine. It is beyond the scope of the available data to analyze if ECP outreach to groups of students in their cluster resulted in more help-seeking or if some feature of the ECP address a cultural or psychological feature within those under-treated groups. When considering the findings of this study, the types of settings and campus makeup may influence the significance, direction, and magnitude of the ECP's effect on help-seeking in each specific population. While the generalizability of these results is limited, it is the author's hope that the methods used here are considered in future applied research efforts on other campuses.

### **International Student Help-Seeking**

The implementation of the ECP was associated with a significant positive effect on the rate of help-seeking in international students. The impact of the ECP was estimated to increase the rate of help-seeking in international students by 0.5% for a given week in a given college. The over-all rate of international students seeking help is low compared to

the total population of the school. The university has an international undergraduate student rate of about 4.9% for the years in this study. There was a smaller proportion of international students seeking help during these years, only 287 out of 7113 students (4.03% of all clients) were international students. The ECP's estimated 0.5% increase in the overall proportion of students seeking help that identified as international students suggests a substantial effect for this population. That the ECP resulted in an over-all increase in the proportion of international students suggests this program helps to address an important treatment gap on campus. Why this effect was observed is impossible to determine with the currently available data. The constructs of internal stigma, perceived external stigma, and perceptions of counseling have been identified as potential barriers to international students' help-seeking (Lee et al., 2014). It is possible that the ECP is effective in mitigating some or all of the effects of these psychological barriers to help-seeking. Future research on programs like the ECP would benefit from inspecting these psychological traits in addition to descriptive demographic variables.

### **Asian/ Asian American Student Help-Seeking**

In 2014, Asian and Asian American students made up 18.9% of the campus' total population but only accounted for 16.5% of clients at the counseling center before the ECP was implemented. The implementation of the ECP was estimated to approach a significant positive effect ( $p < 0.1$ ) on the rate of help-seeking in Asian American-identified students. The impact of the ECP was estimated to increase the proportional rate of help-seeking by 0.2% for Asian and Asian American-identified students for a given week in a given college. While this may seem like a small shift within this population, the estimated effect size amounted suggests the ECP had a small to medium effect on this outcome. This finding lends support to the hypothesis that the ECP resulted in increased help-seeking for Asian



and Asian American students but would benefit from replication with additional power/clusters. Adding additional clusters from graduate student-only colleges and schools may help determine if this effect is indeed statistically significant.

The reasons for the observed effect may relate to the structural features of the embedded model. The ECP may address important physical barriers of distance and location, but these barriers were addressed for all students, and did not result in an increase of treatment-seeking for all groups. This suggests that the ECP is acting on Asian and Asian American students in a different way from other racial/ethnic groups. Research suggests the cultural and psychological factors of collectivism, sense of burdensomeness, and disengagement coping strategies mediate the relationship between Asian and Asian American identities and help-seeking (J. L. Choi et al., 2009; Y. J. Wong et al., 2010; Y. J. Wong, Koo, Tran, Chiu, & Mok, 2011). By locating mental health providers in the community that these students identify with (e.g. academic major), the ECP may address the barriers for help-seeking in students with these cultural and psychological features. Future research on the impact of programs like the ECP would benefit from measuring these features in addition to the demographic characteristics like race/ethnicity.

When considering the impact of the ECP on international students, it is important to note that most international students identify as either Asian/ Asian American or Hispanic/Latino/a (this accounts for approximately 84% of all international students). These two racial/ethnic groups overlap but seem to respond to the program differently. This raises questions about the cultural factors/barriers the ECP is addressing. The ECP seems to have resulted in a significantly higher proportion of Asian and Asian American students seeking help, but the same is not true for Hispanic/Latino/a students.

## **First Generation Student Help-Seeking**

One unexpected result is the lack of statistically significant effects of the ECP on help-seeking in first-generation students. While unexpected, the first generation student results should be interpreted with caution. A total of 105 observations clustered by week and by college were missing (about 7% of the total observations used in this analysis). This level of missing data is many times higher than the next highest proportion of missing data for any other outcome. International student status had the next highest rate of missing data at 1.77% of responses missing. That students were not responding to the SDS item inquiring about first generation status at a rate many times higher than any other identity-related item may indicate that the label “first generation” may carry a stigma for students. It may also be intentionally left blank if the definition of “first generation” is confusing or ambiguous for students completing the SDS.

Ultimately the implementation of the ECP is estimated to have no impact on the help-seeking rate of first generation students. Of the 7,114 students seeking counseling in this study, 1,720 students identified as first generation (24.2% of the overall population). This is compared to the 22.3% to 25.5% annual rate of students enrolled in the university from 2013 to 2017. These numbers suggest that there is not a treatment gap for first generation students at this specific university. However, this does not account for whether there is a difference in the level of need in this population. Additionally, the ECP’s positive effect on the proportional help-seeking in Asian/Asian American students may influence these results. Proportionally, Asian/Asian American-identified students in this sample were less likely to be first generation students (21.1% compared to 24.2% of the overall sample). That a substantial increase in this population was observed, it stands to reason that the rate of help-seeking in first generation students would decrease, even if the over-all number of first-generation students does not. The finding that the ECP resulted in no change in the

proportional help-seeking for first generations students is not an alarming result, but it is noteworthy. These findings could inform future implementation strategies when considering alternative clinical models intended to support first generation students.

### **Other Non-Significant Results**

The ECP was estimated to have no significant effect for help-seeking in any other measured race/ethnicity group or with male students. The lack of significant findings with other groups may indicate that the ECP does not address the cultural or psychological barriers to help-seeking in Black/African American, Multi-racial, Hispanic/Latino(a), or Male students. Future studies of the cultural and psychological factors that predict help-seeking in these groups would benefit the evaluation of programs designed to promote help-seeking in these populations.

### **LIMITATIONS**

Sample size presents a challenge when conducting fixed effects linear regressions with clustered standard errors as the power for estimating program effects is dependent on the number of clusters (colleges) not the number of observations within each college (by week) or the number of students included in the aggregated data. Apart from the effect on first generation students, very few of the non-significant findings approached significance near the  $p < .05$  value ( $p$  value between .1 and .05). The effect of the ECP on the average age of initial help-seeking by second year students approached significance with  $p > .07$ . This effect was in the opposite direction expected (that the ECP would result in older second year students seeking help). No other effects on age approached significance. The effects of the ECP on anxiety in third year students approached significance with  $\beta = -0.23, p = 0.05$ . No other effects for anxiety approached significance. That these two effects

approached significance at the  $p < .05$  level is likely an artifact of the data as the literature provides no theoretical reason for why age and anxiety in only second and third year students (respectively) would be influenced by the ECP but that the ECP would not have effects on these outcomes for the other academic ranks.

The ECP's lack of significant effects on the average age of students seeking help in a given week and given cluster does not support the hypothesis that the ECP serves as an early intervention program. If the program demonstrated an early intervention effect, students presenting for counseling for the first time would be expected to be younger on average after the ECP was implemented in a given college. Further research is required to determine whether the lack of findings is due to the limited sample size, small detectable effect sizes, or some other unaccounted for factor. A comparison of students' age by program however does suggest that students who utilized the ECP were younger on average than those in the CC. A Welch Two Sample t-test suggests students who sought counseling from the ECP ( $M = 22.24$ ,  $SD = 2.53$ ) seem to be younger on average than students seeking counseling from the CC ( $M = 23.02$ ,  $SD = 3.06$ ),  $t(2251) = 9.64$ ,  $p < .001$ , 95% CI [0.62, 0.94]. This difference in average age for students in the ECP is estimated to be between half a calendar year and a full year younger on average than students seeking help from the CC program. This may lend some support to the possibility that the ECP offers an early intervention and that the panel analysis suffered from a lack of power to detect these effects over time in each cluster.

Generalizability of the results of this specific study is limited as the data is derived from a single campus. Adding data from additional campuses would help with over-all generalizability but would also shift the clustering variable from specific academic schools to complete universities and would require a massive and sustained data collection effort. Large data repositories like the CCMH, The National Research Consortium of Counseling

Centers in Higher Education, and Healthy Minds collect clinical surveys, institutional records, and demographic data that could offer compelling opportunities for applied research. Collecting and coordinating these data with campus institutional records related to program rollout and implementation will present additional (but not insurmountable) barriers to further research on collegiate mental health programs.

The broad labels including race and ethnicity, gender, first generation status, and international student status also pose a problem for understanding the effects of the ECP on help-seeking in under-treated student populations. The demographic data used in this study were limited by the lack of depth/complexity in institutional records and (in a limited number of cases) self-reported identities. Ultimately these broad categories are insufficient and future administrative data collection should consider expanding the labels and identities students can indicate when self-reporting their group affiliations. Open-ended responses were collected and coded in this study as well, leaving the assignment of a label to a small number of students up to the author. In the interest of transparency, decisions regarding assigning students who indicated an open-ended identity response (e.g. “South Asian” on the Race/Ethnicity intake item) can be found in the R Markdown document linked in the appendix of this document.

Estimating the effects of the ECP was a complicated and multifaceted endeavor. Attempting to approximate the complex psychological processes involved with mental health help-seeking using self-reported symptom inventories and self-identified demographic labels presents challenges for researchers. Add to this the difficulty of second-hand institutional data that precludes the ability to ask participants follow-up questions to gain clarification or deepen understanding. Considering the various limitations of this study, this dissertation serves as an invitation for further inquiry into and evaluation of alternative college counseling and wellness programming. In short, this is merely a starting

point. This is not a definitive statement on whether programs like the ECP do or do not work and for whom. Understanding the former will require much greater statistical power and qualitative nuance. Additional clusters, longer data collection time periods, using primary qualitative and quantitative data collection, and further capacity building for applied research in student wellness and identities would serve to address many of the limitations of this study.

### **FUTURE DIRECTIONS**

The current study inspects only the impact of the ECP on students' initial clinical features upon intake. Determining whether students have similar or different clinical outcomes after a course of therapy would be a natural next-step for this research. Exploring changes in student distress over time may help answer the question of whether the ECP offers an early intervention and might demonstrate that students in the ECP experience a reduction in symptoms with fewer sessions. As the implementation of the ECP was associated with a lower initial severity in first year students, further study of liaison and embedded counseling programs on early intervention and student retention in the first year could provide deeper insights into the effects of these programs.

Better collection, understanding, and use of cultural identities is needed in applied research. Using a culturally derived identity such as race or ethnicity as a proxy measure of a given psychological construct is ultimately problematic. Such a practice presumes that previously measured group differences in a given psychological construct (e.g. mental health stigma) are present and stable within each observed sample of that subgroup. This problem is exacerbated when multiple intersecting cultural identities are considered, which may result in compounding the error inherent in proximal (rather than direct) measures of psychological constructs. Additionally, broad identity labels like those available for this

study are limiting. For example, the use of Asian/Asian American fails to specify whether a student identified as East or Southern Asian, their level of acculturation to a western context, or the salience of that identity for that student.

Future data collection would benefit from measuring psychological constructs in addition to cultural and demographic labels. This would allow institutions to directly measure psychological and cultural constructs, use them as predictors, and test (rather than assume) their effects across cultural groups within a campus's population. By measuring these constructs directly, programs can model the relationship among program outcomes like help-seeking behavior with psychological constructs like stigma. Such models could even incorporate intersecting identities like gender identity and race/ethnicity. Such a practice would allow researchers to conduct analyses that are more granular and specific to populations, which may vary greatly within their group more than between other groups on campus. Ultimately, the practice of directly measuring psychological and cultural constructs may allow applied research to test whether programs are able to effectively address barriers to help-seeking like stigma in specific under-treated groups on college campuses while allowing for (and measuring) the variation in psychological constructs within those subgroups.

How we collect data on students' identities also presents challenges to applied research in university settings. The labels students use to self-identify are changing rapidly. Institutional data will need to be increasingly flexible to capture an accurate description of how students think about themselves. Capturing these changes in culture requires regular change in measurement instruments. This can complicate longitudinal estimation of program effectiveness for groups and individuals with ever-changing compositions. Indeed, this study was forced to forgo estimating the impact of the ECP on students grouped by sexuality and gender expression due to the year-to-year shifts in the identities collected

over the 6 years of the study. The labels society uses to group or aggregate individuals by identities will continue to change, but key psychological and cultural constructs like stigma or collectivism may offer predictive value to program outcomes without the complication of changes to the measurement tool itself. This reinforces the importance of institutions using psychological measures rather than relying solely on self-identified labels and demographic labels to draw applied research conclusions about program effects.

Institutions whose purposes include the promotion of human wellness would benefit from directly measuring populations' psychological characteristics rather than merely relying on group labels. Using psychological science at a population level may help institutions better build and monitor interventions based on the psychological predispositions directly measured in a population.

In addition to psychological and cultural barriers, further research on the physical barriers that influence student help-seeking is warranted. New initiatives in on-line therapy, decentralized counseling, and peer-to-peer support may help students maneuver through the barriers to their help-seeking. Further study of where ECP counselors are located in buildings and on campuses could include using geographic information system mapping (GIS) technology to determine the effects of placing counselors on the first floor of a building, or at the bottom of a hill. The distance and elevation of services from students may be an important predictor of the likely-hood a student seeks help. Testing the effect of the location of counseling services is an important next step in determining the reasons for the impacts of programs like the ECP.

## **SUMMARY OF FINDINGS**

The Embedded Counseling Program physically situates mental health providers in decentralized student spaces to promote help-seeking with students that may delay or



together forgo seeking help for a mental health concern. The program is designed to address the physical, cultural, and psychological barriers for student help-seeking. A series of fixed effects linear regressions with clustered standard errors (clustered by college) demonstrated a number of compelling results on student help-seeking and symptoms at intake. The implementation of the ECP was associated with significant reductions in the initial suicidal ideation and depression in first year students seeking-help on campus. Similar effects on fourth year students' academic distress were observed. The impact of the ECP on help-seeking in traditionally under-treated populations was also studied. The implementation of the ECP was associated with an increased rate of help-seeking in Asian/ Asian American and international students on campus, both of which were traditionally under-treated groups. Unexpectedly, the ECP was associated with no change in the rate of help-seeking in first generation students. Results of this study suggest the ECP had a significant campus-wide impact on the initial severity of symptoms in students seeking help as well as the demographic characteristics of the students seeking help. Whether these impacts constitute an early intervention effect remains unclear. While future research is warranted, the current study offers a methodological framework for studying and initial understanding of the impact of non-traditional mental health program on a campus as a whole.

## Appendix

A further aim of this study was to provide a transparent, repeatable methodology that other college counseling centers can use to test and potentially reproduce similar findings to those presented in the results section of this paper. While the current study's raw data is unviable for privacy and data-security reasons, the R Markdown "Embedded Counseling R Script and Analysis" is provided at the address: [osf.io/867dn](https://osf.io/867dn) (Balsan, M. J., 2019). This supplemental document offers an annotated, step-by-step guide for how the data was cleaned, structured, and analyzed. This documentation was provided to promote transparency and replication in social science.

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