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Fast-Track for Timely Treatment of Depression in College Students

DNP Scholarly Project Paper

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DOCTOR OF NURSING PRACTICE

in Nursing Science

by

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DEDICATION

To

my parents

in recognition of their hard work and sacrifice.

Life's most persistent and urgent question is, 'What are you doing for others?
Martin Luther King, Jr.

Our greatest ability as humans is not to change the world, but to change ourselves.

Mahatma Gandhi

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ABSTRACT OF THE DNP SCHOLARLY PROJECT PAPER

Fast-Track for Timely Treatment of Depression in College Students

by
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University of California, Irvine, 2022
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Background: Depression is a prevalent and leading issue among college students, which became worsened by the global pandemic of COVID-19. The Student Health Clinic in one of the tertiary public universities in Southern California also proved to be impacted with mental health complaints, depression being one of the most common diagnoses. The early treatment of depression is critical to avoid possible complications including suicidal ideation from untreated depression.

Objectives: The primary objective was to implement a new workflow (Fast-Track) to treat students with uncomplicated depression as early as possible.

Method: This project used a pre- and post-intervention design. The Fast-Track has three components: 1) reserving appointment slots from primary care providers' clinic schedules for the Fast-Track patients, 2) sending an education material about depression treatment options to the patients to read before an initial visit, 3) providing two follow-up visits at weeks 2, and 5 or 6. A descriptive analysis was performed for demographic data and secondary outcome (PHQ-9 score), Paired two sample t-Test was used for the primary outcome (time to treatment in days). Data from the participants who completed the two follow-up visits were included in the analysis.

Results: A total of 24 patients met the criteria for uncomplicated depression. 16 patients completed the two follow-up visits. Time to treatment in days reduced from 19.2 days (SD 4.6)

to 2.5 days (SD 1.8) ($p < 0.05$). The mean PHQ-9 score at the baseline visit was 13.6 (SD 4.1) and 11.4 (SD 2.5) at the second follow-up visit with a mean change of -2. 2. 81.3% (n=13) of the 16 patients reported improvement at week 5 or 6 and 18.6 % (n=3) reported worsening of their depression symptoms.

Conclusion: Opening up access to provider schedules greatly improved the patient's time to treatment. Utilizing primary care providers, including APRNs, in the management of simple, uncomplicated depression for college students was safe and successful. The outcomes seen in this project offer some insight into how the pharmacological treatment for simple, uncomplicated depression can be safely initiated sooner among college students.

CHAPTER 1: INTRODUCTION

Fast-Track for Timely Treatment of Depression in College Students

Nearly one in five adults in the United States (U.S.) lives with a mental illness (National Institute of Mental Health, 2015). Of all the mental health issues, depression is considered one of the most common psychiatric conditions (Ampong, 2018; World Health Organization, 2022). The prevalence of a major depressive episode in adults is highest among individuals aged 18-25 (National Institute of Mental Health, 2015). This is a significant and growing concern for college campuses across the United States. University students are a vulnerable population who suffer from higher levels of anxiety and depression compared to the general population (Ebert et al., 2019a). Hoyt et al., 2021; Odriozola-González et al., 2020). The transition to university coincides with an important phase of individuation and separation from family, development of new social connections, and increased autonomy and responsibility (Duffy et al., 2019). College students are at a vulnerable time in their lives due to the period of brain growth and risk exposures during school (Huang et al., 2018). During this developmental time, the brain undergoes accelerated development and is at heightened sensitivity to risk exposures commonly encountered by university students, including psychosocial stressors, recreational drugs, alcohol binging, and sleep disruption (Duffy et al., 2019).

Background/Significance

The coronavirus disease 2019 (COVID-19) has become a massive burden on the public mental well-being (Kecojevic et al., 2020; Quintiliani et al., 2021). The pandemic sent billions of students worldwide into lockdown (Bourion-Bédès et al., 2021), which led to an increase in depressive complaints throughout college campuses. The pandemic-related challenges, which include economic stressors, effects on daily life, social isolation, academic delays, and future unknowns, are all associated with mental health symptoms of students including depression.

(Cao et al., 2020; Padrón et al., 2021). Even students without preexisting mental health issues have experienced more significant increases in psychological distress during the pandemic. Depressive symptoms negatively affect a student's academic performance, as well as their everyday lives (Wada et al., 2019). College students who exhibit poor sleep quality, fatigue, and lack of interest are at greater risk of failing exams and dropping out. These students are also at an increased risk for suicidal ideation (Akram et al., 2019; Barahona-Correa et al., 2018).

Depression is significantly associated with suicide and suicidal behaviors (World Health Organization, 2022). An estimated 6% of first-year university students had current suicide ideation (Arria et al., 2009). It is reported that around half of patients with depression report having suicidal ideation (Kupfer, 2005). In college students, Mackenzie et al. (2011) found that one in four reported symptoms of depression and one in ten reported having suicidal thoughts. Students with current suicidal ideation had significantly higher depression symptom than those without suicidal ideation (Garlow et al., 2008). Although studies suggest that the greatest elevation in suicide ideation occurs at the highest depressive symptoms, significant suicidal ideation is also experienced by college students with mild and moderate depressive symptoms (Cukrowicz et al., 2011). Sadly, suicide is a leading cause of death for college students (Hayes et al., 2020; Hirsch et al., 2019).

Fortunately, there is an effective treatment for mild, moderate, and severe depression. Antidepressants have well-proven evidence of efficacy and effectiveness on depression. Studies have shown that antidepressants improve depression symptoms in adults compared with placebo (Arroll et al., 2005: Kuper, 2005). Approximately one-half of patients with depression at the primary care settings responded well to medications. While adverse effects were reported with all antidepressants, most were transient, and no major adverse effects have been reported after

long-term use. According to Gabriel et al., (2020), all Clinical Practice Guidelines indicate serotonin selective re-uptake inhibitors (SSRIs) as a first-line treatment for depression. The recommendations were based on high-quality studies. Adherence to antidepressants is crucial for optimal treatment outcomes when treating depression (Solmi et al., 2020). However, despite increased utilization of pharmacological treatment for depression, the literature has also shown that the rates of treatment for depression in college students are very low (Lipson et al., 2019; Pedrelli et al., 2015). Approximately 35% of adults, which includes college students with a major depressive episode, did not receive treatment. (National Institute of Mental Health, 2015).

College students are not accessing services for a multitude of reasons. Shortages of mental health care providers, health plan barriers, and lack of coverage or inadequate coverage were all cited by primary care providers (PCPs) as important barriers to mental health care access (Cunningham, 2009). Self-stigma is another barrier to accessing support (Cage et al., 2018). Disclosure, educational impact, previous diagnosis, suspected diagnosis, and mental health symptoms are all considered substantial barriers to seeking help (Cage et al., 2018). A negative perceived value, discomfort with emotions, lack of knowledge, and cultural barriers are also the causes that impede depression treatment among college students. For example, many Asian American college students have culturally relevant barriers such as higher loss of face concern and family stigma toward mental health (Gee et al., 2020). Stigma perceptions, negative attitudes about treatment, and perceptions of the practical barrier also seem to be an overriding theme (Jennings et al., 2015). College students report specific attitudinal and structural barriers to help-seeking, such as cost and inconvenience (Gee et al., 2020).

Meyer et al., (2016) found that an unwillingness to share depression experiences with primary care physicians contributes to the undertreatment of depression. Analyses indicated that

26% of respondents would not disclose depression symptoms to PCPs. Reasons for nondisclosure included difficulty initiating the depression conversation, medication aversion, and fear of referral to a psychologist. Waitzfelder et al., (2018) confirmed that depression treatment initiation remained suboptimal despite a clear association between depression and low academic performance and suicidal ideation.

Another challenge college students face is inadequate depression management. Eisenberg & Chung (2012) found that minimally adequate treatment was received by only 22% of depressed students. They noted that the rate of adequate care was lower for students prescribed medication by a primary care provider when compared to one by a psychiatrist. Racial/ethnic minority students were less likely to receive depression care.

It is evident that inadequate efforts to address college students' depression, especially during a pandemic, could have long-term consequences on their health and education (Browning et al., 2021). This highlights the need for readily available mental health services that can expedite the treatment of depression for the college student population. The high rate of exposure to multiple stressors and suicidal ideation among the U.S. college population point to an urgent need for service utilization strategies (Liu et al., 2019). Utilization of readily primary care providers who can treat depression may be one of the strategies to improve the early treatment of depression among this population.

Problem Statement

Early treatment of depression is critical to avoid possible complications from untreated or delayed treatment among college students. However, the current process of treatment at the SHC of the project site is relatively long and arduous so that it usually takes at least 3- 4 weeks before they can start a pharmacological treatment. When a patient presents to the clinic due to

depression, they need to fill out PHQ-9 first. The provider during the first visit briefly discusses modifications to lifestyle management and possible pharmacological treatment options. After this initial visit, the patient is referred to a social worker for further mental health discussions or a psychiatrist for medical management. At times a patient is referred to the social worker then to the psychiatrist which prolongs the time to treatment. During the visit with the psychiatrist, there will be a discussion on the options regarding the pharmacological management of depression, but the pharmacological treatment will not be initiated during that visit. The student needs to make another visit to follow up and start a medication, which may take weeks depending upon the availability of the psychiatrist at the SHC. In a two-month period in 2021, the SHC had a total of 81 mental health visits in primary care of SHC showing the need for depression treatment. 22 patients out of these 81 patients took average 19.2 days to start antidepressants. This highlights the gap at the SHC where students are treated but not in a timely manner. Therefore, my PICO question that guided this project was as below.

Can implementing a Fast-Track for depression treatment expedite the initiation of pharmacological treatment faster compared to the current process in place and relieve the symptoms of depression among college students?

CHAPTER 2: Body of Evidence

Review of the Literature

Search Process

A review of literature on the topic of depression among college students was performed. During the search strategy, the following databases were used mainly through the Grunigen Library database under PubMed, CINAHL, as well as Google scholar. The interchangeable search terms used include “depression”, “depressive disorder”, “clinic”, “mental health”, and

"health services". The second set of search terms were "college students", "university students", and "students". The third set of search terms were "treatment", "drug therapy", and "antidepressants". The expanders were any equivalent subjects. The only limiters applied were to articles in the English Language and within the last 10 years. The search generated 35 articles, eight of which were erroneously included due to their irrelevance to the search topics and thus were omitted. Three were duplicates and nine articles were removed because they did not apply to the population or method of intervention. Many articles were not used due to the focus being different from the intended topic. After categorizing articles into inclusion criteria for this topic, 15 articles were generated and used in this review of literature on depression and depression among college students. The articles chosen are predominantly RCT and meta-analysis articles that emphasize the need of this project (see Appendix C).

Appraisal of Evidence

Clinical practice guidelines offer providers a recommendation to guide practice and treatments that are based on the current literature. For depression, the American Psychological Association (APA), the Institute for Clinical Systems Improvement (ICSI), and the Canadian Network for Mood and Anxiety Treatments Guidelines all have a high level of evidence to support treatment with antidepressants for this project. The AGREE tool II was used to evaluate the strength of both guidelines. APA scored 6 out of 7 and ICIS scored 7, the highest point (see Appendix E). The ICSI Health Care Guideline (Trangle et al., 2016) is a clinical practice guideline specifically aimed at treating depression in adults in the primary care setting. The American Psychological Association clinical practice guidelines focuses on children, adolescents, adults, and older adults who suffer with depressive disorders.

Kennedy et al., (2016) examined the Canadian Network for Mood and Anxiety Treatments (CANMAT) Clinical Guidelines for the Management of Adults with Major Depressive Disorder which concurred with both APA and the ICSI guidelines in that antidepressant medications are an effective first-line treatment for patients with a major depressive episode. They also suggested non-pharmacological treatments for individuals with depression of mild severity, such as psychoeducation, self-management, and psychological treatments.

All guidelines recommend screening for depression, initiating treatment promptly, and treating patients with antidepressant medications and/or psychotherapy (APA, 2019; Trangle et al., 2016). It is recommended that consideration should be given to patient and clinician preferences, medication side effects, and cost. While the best action will depend on local circumstances, patient values or preferences, both clinical practice guidelines recommend treating patients with depression with antidepressant medications as an initial treatment (APA, 2019; Trangle et al., 2016). It is suggested that the treatment for patients with severe depression should be with antidepressant medication and psychotherapy (APA, 2019; Trangle et al., 2016). Research suggests that because of the side effects and safety profile, selective serotonin re-uptake inhibitors (SSRIs) are the first line antidepressants (Kriston et al., 2014). The guidelines offer that further research is very unlikely to change the confidence in these recommendations.

Comprehensive Synthesis of Evidence

A comprehensive literature review of 15 articles revealed four major themes: 1) The prevalence of depression among college students is high, 2) prompt treatment and addressing stigma are critical in treating depression, 3) decision aids for shared decision-making improved

knowledge and engagement of college students, 4) various effective treatments for college students are available.

High Prevalence of Depression Among College Students

Liu et al., (2019) did a cross-sectional study that 67,308 degree-seeking undergraduate students from 108 institutions completed the survey. The study measured stress, anxiety, depression, suicidal ideation among college students. The outcome showed that one out of four students reported mental health conditions, and one out of five had suicidal ideation. Similarly, Rotenstein et al., (2016) did a meta-analysis on prevalence of depression, depressive symptoms, and suicidal ideation with195 studies involving 129,123 medical students in 47 countries. According to this analysis, the rate of depression or depressive symptoms among medical students was 27.2% and that of suicidal ideation was 11.1%. While this speaks to the prevalence of depression among medical students, it shows that university students are afflicted with depression, and emphasizes a need to finding ways to address this problem.

Prompt Treatment and Addressing Stigma

The literature emphasizes the need to increase utilization of the treatment and reduce the stigma associated with depression. Some evidence supports the need for prompt treatment with antidepression for better management of depression. Knapstad et al., (2020) conducted a randomized control trial (RCT) with 681 adults over 18 years of age who had anxiety and/or mild-moderate depression. The purpose of the research was to investigate the effectiveness of the prompt mental health care (PMHC) treatment compared to treatment as usual (TAU) at 6-month follow-up. They used two validated tools, the PHQ-9, and the GAD-7, to monitor the severity of symptoms between baseline and follow-up visit. The reliable recovery rate at 6 month was 58.5% in the PMHC group and 31.9% in the TAU group, yielding a between-group effect size of

0.61. This result provides more solid evidence in favor of an effect of PMHC treatment on recovery and alleviation of symptoms and improvement in function and quality of life at 6-month follow-up for adults with symptoms of anxiety and/or mild to moderate depression.

While prompt identification and treatment are beneficial, there is still considerable variations in barriers to treatment, including stigma. Martinez et al., (2018) did two studies, one RCT and one cross-sectional study that investigated the incidence of stigma on taking antidepressants. In the first study, 95 participants answered a survey that revealed that stigma toward individuals who take antidepressants is a reality, either because people were not educated about depression and antidepressants, or because they did not show empathy or did not take on perspectives from the victim's point-of-view. Based on the results of the first study, they did a study to investigate the effects of education and perspective-taking interventions on diminishing the stigma of taking antidepressants. In the education condition, participants first watched a video from a Public Broadcasting Service documentary on depression then participants read three pages of information on depression and antidepressants. Participants in the perspective taking condition watched a similar video taken from the same documentary as used in the education condition then was asked to write a paragraph describing an average day in their life and to consider how their life could change with antidepressants. The analysis of covariance results showed that stigma is decreased through education and perspective taking interventions.

The cross-sectional study by Ebert et al., (2019a) surveyed 13,984 university students. The goal of the study was to examine the barriers to help□seeking and the associations of clinical characteristics with these barriers. Web□based self□report questionnaires were administered to first□year students in 19 colleges and universities. The results showed that attitudinal barriers and non-structural barriers were found to be the most important reasons for

hesitation. Only 24.6% of the 13,984 students in the total sample indicated that they would seek help in case of a future emotional problem. More than one fourth (28.6%) of the students who would not definitely seek treatment fulfilled the criteria for at least one of the 12 mental disorders, which include anxiety disorders, mood disorders, impulse-control disorders, and substance use disorder. The most prevalent disorders were major depressive episode (18.6%) and generalized anxiety disorder (16.1%), with 17.9% of the focal sample meeting criteria for exact one, 8.9% exact two, and 4.7% three or more of the mental disorders assessed in the survey. Twelve□month suicide ideation was reported by 8.8% of the respondents who would not definitely seek treatment, and 7.8% reported a 12□month suicide plan. This evidence points to the significance of implementing a project that focuses on decreasing any barriers and opening access to treatment as soon as possible. A study that focused on how to increase utilization of depression services Ebert et al., (2015) did a RCT on 128 primary care patients who were at least 18 years of age with minor or major depression awaiting treatment. They showed a 7-minute informational video about internet-based interventions (IBIs) before receiving a questionnaire that assessed their acceptance of IBIs and other secondary outcomes and compared them to a control group. The outcome was that acceptance of IBIs was significantly higher in the intervention group when compared to the control group (*d*=.71, 95%–CI:0.09–2.91). While this study found low acceptance rates of IBIs in primary care patients with depressive symptoms, it also provides evidence that acceptance can substantially be increased using a brief informational video. This is important to consider as it supports the need of educational material for patients struggling with depression.

Decision Aids

Perestelo-Perez et al., (2017) did an RCT that recruited 147 adults over 18 years of age with a diagnosis of major depressive disorder. 68 patients were randomized to the intervention group who received the decision aid materials, and 79 patients were placed in the normal treatment group. The goal was to assess the effectiveness of a web-based decision aid for patients with depression. The outcome found that shared decision-making after receiving decision aid materials was an important component in helping patients with depression to make informed choices. Another study that focused on decision aids was conducted by LeBlanc et al., (2015). This study was a cluster randomized trial that included 117 clinicians, and 297 patients from 10 practices (1 rural, 1 suburban, 8 urban). Researchers made a patient education aid called Depression Medication Choice (DMC), a series of card about the depression medication. The study wanted to see if the use of DMC would improve patient engagement. Decision-making quality, involvement in decision making, patient and clinician decisional comfort (Decisional Conflict Scale) and satisfaction, and depression symptoms (PHQ-9) were measured. The outcome revealed that shared decision-making for antidepressants assisted using DMC in primary care was feasible, and it effectively improved patient knowledge and engagement. This research also supports the benefit of using decision-making aid and including patients in their treatment plan and management of depression as shown in Perestelo-Perez et al. study.

Available Effective Treatments for Depression Among College Students

The literature strongly supports that depression requires efficient management often with antidepressants. Kriston et al., (2014) did a meta-analysis that included two different networks of trials. The first network of 45 trials tested 28 drugs and included data from 5,806 and 5,348 patients. The trials included in this analysis compared drugs with each other and a placebo. The 2nd network included trials that compared psychotherapy and combined treatment with each

other, a drug treatment, or a placebo. The efficacy outcome in this meta-analysis was defined as at least 50% improvement on a symptom severity rating scale. The study found that acute pharmacological, psychotherapeutic, and combined treatment for persistent depressive disorder were effective, but the interpersonal psychotherapy was less effective than starting an anti-depression medication for those who have major depressive disorder. All pharmacological treatments (fluoxetine, paroxetine, sertraline, moclobemide, imipramine, ritanserin, amisulpride, and acetyl-l-carnitine) produced better response than placebo. Lower drop rate was seen with sertraline than imipramine.

Another study by von Wolf et al., (2013) also supports the pharmacological treatment is effective. This study was a meta-analysis that examined RCTs from 20 studies with 22 relevant comparisons. The goal of this analysis was to look at the effectiveness between SSRIs and tricyclic antidepressants (TCA) and placebos. The outcomes provided evidence for the efficacy of both SSRIs & TCAs in the treatment of chronic depression and showed a better acceptability of SSRIs, which is a consistent result shown in the meta-analysis by Kriston et al. (2014).

And another meta-analysis study focused on how antidepressants are more effective at treating depression than placebos (Cipriani et al., 2018). This analysis identified 28,552 studies, and included 522 trials comprising of 116,477 participants, older than 18 years old and of both sexes. It included double-blind, RCTs comparing antidepressants with placebo or another active antidepressant as oral monotherapy. Response rate was measured by the total number of patients who had a reduction of greater than or equal to 50% of the total PHQ-9 score. The results found that all antidepressants were more effective than a placebo with amitriptyline being the most effective drug. The group who took Agomelatine, fluoxetine, and escitalopram had better

dropout rate compared to one who took other antidepressants. Agomelatine is not available in the United States.

The result of all three meta-analyses consistently show that pharmacological treatment is effective, and SSRI has better tolerability, and superior efficacy compared to the interpersonal psychotherapy. However, the RCT by Magnani et al., (2016) with 170 patients from a university-based psychiatric consultation-liaison services that analyzed factors associated with depression treatment preference showed non-pharmacological treatment was preferred by patients. This would be the critical aspect to consider when planning a treatment for depression.

Next two studies explored non-pharmacological treatments for depression. A meta-analysis by Cuijpers et al., (2016) investigated the effects of psychological treatments of depression in college students. This study included 15 RCTs on 997 participants who were depressed college students. The outcome noted that cognitive behavioral therapy, behavioral activation therapy, interpersonal therapy, and psychodynamic therapy were effective in treating college students for depression. Meta-analysis by Huang et al., (2018) supports the findings from Cuijpers et al. study. Huang et al., also examined non-pharmacological different interventions for common mental health problems among university and college students in a larger scale. They reviewed 7,768 abstracts from which 331 full-text articles and 51 RCTs were included in the analysis. Inclusion criteria included college students, depression, anxiety disorder, OCD or PTSD from January 2000-May 2018. Interventions in the studies included cognitive behavioral therapy, mindfulness, attention perception modification, and other interventions. Interestingly, this analysis found that other interventions such as art, exercise, and peer support had the best response for depression than CBT that is considered the most common, non-pharmacological treatment for depression.

These findings from the meta-analyses are noteworthy for clinicians in practice where the clinicians may encounter students who are hesitant to start pharmacological treatment out of fear or worry about stigma. These various non-pharmacological treatment options would be great alternatives for students who decline medication treatment.

The comprehensive literature review shows that depression is a significant burden among college students. The literature also informs us that the barriers to the prompt treatment can be improved through education and with shared decision making. While the options of depression treatments vary, antidepressants seemed to be the one of the most studied and supported with evidence. Overall, the literature seems to suggest that early and prompt depression treatment along with decision aid materials can lead to better management of depressive symptoms. Concurrent psychosocial treatment such as cognitive behavioral therapy or interpersonal therapy would also be beneficial for better outcomes (see Appendix D).

Evidence-Based Recommendation for the Project

Based on the literature synthesis, below is the recommendation for the DNP project.

- The project should use a patient education aid to empower the patient in decision-making process for depression treatment.
- The project should aim to create prompt treatment practice needs to be done to avoid preventable complications from untreated depression.
- Treatment options should include the antidepressant of patient's choice via a shared decision-making process with a provider.

CHAPTER 3: PROJECT FRAMEWORKS

Evidence-Based Practice Model

The DNP project was guided by the Johns Hopkins Evidence-Based Practice Model which has the three phases: the practice question phase, the searching for the evidence phase and the translation into practice phase (Dang et al., 2021). The practice question phase has six steps which include recruiting a professional team, defining the problem, developing, and refining the EBP question, identifying stakeholders, determining responsibility for project leadership and scheduling team meetings. The first step guided the project by first identifying what the current process of treating students who are depressed was and if there were any flaws in the process. The second phase included conducting internal and external searches for evidence, appraising the level and quality of each piece of evidence, summarizing the individual evidence, synthesizing overall strength and quality of evidence, and developing recommendations for change based on evidence synthesis. Then the last phase guided to consider the feasibility of recommendations for the project plan, create an action plan, secure support, and resources to implement the action plan, implement action plan, evaluate outcomes, report these outcomes, identify next steps, and disseminate the findings (see Appendix F).

Logic Model

Studies show that utilizing a logic model for the development of DNP projects increases the quality, consistency, and rigor of the project (Sun & Cherry, 2019; Idzik et al., 2021). The logic model helped guide and maintain focus on the objectives of expediting depression care and on the goals of implementing a better process of managing depressed patients. The logic model guided developing the total input and output of resources needed as well as specific tasks that need to be completed along the way. The logic model allowed a visual on the short term and long-term goals of improving the health status of the patients as well as changing the collaborative care process. Program evaluation is a big piece of this model. The formative and

summative evaluation of the project implementation was completed as planned (see Appendix G).

CHAPTER 4: METHODS

Project Goals

The purpose of the project was to address untreated or delayed treatment of depression among college students at the project site by improving the current workflow of how and when the students were treated for depression. The short-term goal of the project was to develop and implement an evidence-based new workflow called Fast-Track for Depression in the student health care setting that aimed to improve the management and treatment of simple, uncomplicated depression**.** A long-term goal of the project is to reduce depressive symptoms and possible complications of depression among the college students at the project site.

Project Description

Project Type/Design

This DNP project was a QI Project. Pre- and post-intervention design was used.

Project Setting/Population

The project took place in the SHC at the one of the tertiary public universities in Southern California, a high frequented, urban university that serves undergraduate and graduate students. The clinic serves a wide demographic. The enrolled student population at the project site includes both undergraduate and graduate: 31.3% White, 23.3% Hispanic or Latino, 16.5% Asian, 7.56% Two or more races, 2.05% Black or African American, 0.198% American Indian or Alaska Native, and 0.141% Native Hawaiian or Other Pacific Islanders. Undergraduate students account for 55% women and 45% men, while graduate students account for 45% women and 55% men. The services rendered at this site include primary care, urgent care,

women's health, LGBTQI care, a drug and alcohol program, social work, psychiatry, physical therapy, occupational health, dietician, ophthalmology, and a dental clinic.

Participants and Recruitment

Patient participants were the college students at the project site who met the criteria for simple, uncomplicated depression seeking pharmacological treatment. The criteria for simple, uncomplicated depression included no history of mania, suicidal attempts, hospitalizations for depression, psychosis, or substance addictions, and no medical conditions that could have been the contributed to depression. When patients raised concerns about depression during a regular medical visit with primary care providers who decided to participate in the project, they reviewed the criteria of Fast-Track and referred the eligible patients to the behavioral health office manager (BHOM), an entry point of the Fast-Track. In addition, when patients called in to make an appointment for depression, they also were referred to BHOM. These patients were evaluated by the staff in social workers services (SW), counseling and psychological services (CAPS), and the Alcohol and Drug Program (ADP) to determine the eligibility for the Fast-Track. Once the patients were confirmed that they met the criteria, the BHOM scheduled the appointment with one of participating primary care providers who already had the assigned time slots for the Fast-Track patients and sent the pre-appointment paperwork which included the patient education materials about pharmacological treatment options.

Provider participants included three primary care providers (one medical doctor and two nurse practitioners), social workers, and psychologists in the SW, CAPS., ADP programs. Non-provider participant was the behavioral health office manager (BHOM).

Description of Intervention

The Fast-Track has three components: 1) reserving open appointment slots from 3 primary care providers' clinic schedules just for the Fast-Track patients, 2) sending an education material about pharmacological treatment options for depression to the patients to read before an initial visit, 3) providing two additional follow-up visits at weeks 2, and 5 or 6.

This project activities for providers and non-provider participants consisted of four components: an information session, a visual workflow diagram for the Fast-Track, email reminders with the flowsheet, and electronic medical record (EMR) system modification.

The project education session was held via zoom in the last week of December 2021 and led by the psychiatrist, a project site mentor to update on the latest on antidepressant treatments and considerations for depression, as well as an overview of the new Fast-Track.

The visual workflow diagram was created to assist understanding of the flow of the Fast-Track Model. This included the patient exclusion criteria for the new Fast-Track, the appropriate route, who was participating in the new model, where the patient goes and when. The diagram was sent out via email to the participants of the Fast-Track three times prior to the initiation of the project implementation, which was on the first week of January 2022. (see Appendix J).

Three modifications were supposed to be made in the EMR system for the project: incorporation of a PHQ-9 flowsheet at each visit for easy documentation, the addition of the type of the visit for the Fast-Track patients to make a room-in process easier and faster, and a Medical Assistant template to aid in communication. However, only the first two modification was completed for the project due to internal resistance to the project. The MA template never came to fruition.

Measures/Instruments

For the primary outcome of the project, time to treatment was measured in days from the day when the participants entered the Fast-Track to the day the participants were prescribed antidepressant. For the severity of depression and efficacy of the antidepressant, the PHQ-9 was utilized. The PHQ-9 contains nine questions using the same scoring scale. The PHQ-9 is valid, takes two to five minutes to complete, and has demonstrated 61 percent sensitivity and 94 percent specificity for mood disorders in adults, and 89.5 percent sensitivity and 77.5 percent specificity in adolescents (Nease, & Maloin, 2003). (see Appendix H).

Data Collection Procedures

The outcomes of the project were collected January through March 2022. The primary outcome of the project (time to treatment in days) and the name of the antidepressant prescribed was collected by retrospective chart review weekly. The PHQ-9 scores were measured at baseline visit during the first appointment, week 2, and the 3rd appointment at week 5 or 6. Once the patients filled out the PHQ-9 at each visit, it was entered into the EMR by the primary care provider who had the medical visit with the patients. The BHOM notified the project lead weekly with the total number of Fast-Track patients who were scheduled.

Data Analysis

Inferential statistical analysis was done using 2-sample t-test for the primary outcome, time to treatment in days. A descriptive analysis was performed for demographic data and other secondary outcomes of the project. Data analysis was done with data from 16 participants.

Ethical Considerations

Prior to initiating the DNP project implementation, this project was registered via Kuali system at University of California, Irvine (UCI) Institutional Review Board (IRB) as a Non-Human Subject Research (NHSR), which is for QI projects. NHSR at UCI does not require a

traditional IRB review. UCI IRB sends the confirmation of the registration via email (see Appendix B). NHSR at UCI does not require a standard consent process. The approval from the project was obtained prior to the implementation. The purpose of the project was explained in detail to each of the primary care providers, medical director, psychiatrist, the BHOM, nursing manager and other SHC staff who would be participants in the project. There was no risk to participants participating in the project. All information collected was aggregated data from the project participants and did not include any potential patient identifiers. Participant confidentiality was assured by coding the participants using individual identification numbers.

Stakeholders/Barriers

The project's stakeholders were the SHC's medical staff which included the medical director, psychiatrists, nurse practitioners, primary care providers, social workers, registered nurses, nurse manager, counselors, therapists, certified medical assistants, the behavior health office manager as well as the student workers. The patients who utilize the student health center were also important stakeholders as the workflow directly impacts their potential health outcomes.

Barriers to implementing the project was a lack of appropriate and thorough communication from the project lead with stakeholders to promote understanding of the purpose of this project between interdisciplinary departments. That barrier was overcome with additional meetings and education from the project lead. The visual workflow poster with a clear step by step process of the new workflow, and three reminder emails helped clarity confusion. Other barriers noted was the stigma associated with mental health and medical management from the general student health population. This barrier was addressed by having the patient participants to review the educational materials on depression as well as the links for depression to dispel

these distorted beliefs. Another barrier was having a change itself in the workflow. There were significant challenges within the informational technology (IT) department that had an abundance of other priorities. This barrier was addressed by the emphasis on the goals of the project but ultimately, one component of the planned EMR modification was never implemented.

Formative Process Evaluation

The formative evaluation took place weekly for the first two weeks followed by biweekly. The formative evaluation questionnaire was developed with 14 questions (see Appendix I).

The formative evaluation showed that of the 24 patients who started the Fast-Track, 22 patients met criteria during the first 2 weeks. One of the 2 patients who did not meet criteria, one had a history of mental health that was more complex with dual diagnoses and a hospitalization. This individual was from China. There was a language barrier that hindered appropriate screening from onset. The other individual was not ready to start medication. The two individuals were referred by a SW who did not read previous emails pertaining to the Fast-Track project, they did not attend the Fast-Track meeting or review the Fast-Track flow sheet. After further discussion with this SW, the information clarified, reiterated, and understood. Once this discussion took place there was not another issue about criteria. Overall, providers felt comfortable with the new flow and expressed their excitement about it. One question that was presented from a provider was that if it was ok to space the follow ups at their discretion. It was clarified that, yes, this was acceptable as long as the patient's PHQ-9 score continued be documented and that it wasn't too far out. Another provider asked that if somewhere along the line the Fast-Track patient discloses more history that includes exclusion criteria if this takes them out of the Fast Track path. It was confirmed this to be the case.

Everyone had been emailed the Q&A without exception as the 1st appt was made. There were a couple patients who had yet opened the email sent by the BHOM and thus were not as prepared on pharm management. Fortunately, both individuals wanted to start treatment and were prescribed medication that day. Patients filled out the medical health history questionnaire with ease. Each patient filed out the PHQ-9 form and the BHOM documented scores into the flowsheet without challenges. There were plenty of available openings with almost every patient booking within a week. This individual had a trip out of town. Other than the one patient as discussed earlier who had no awareness that the point of the Fast-Track was to start pharmacological management, every other participant who started the appointments wanted medication. There were a couple patients in the first week that had made appointments and then ended up being a no show and the other, cancelled. Both reasons we due to the patient feeling better and no longer wanting pharmacological management.

CHAPTER 5: RESULTS AND CONCLUSIONS

Results

During the 6 weeks of project implementation, a total of 24 participants met the criteria for the service through the Fast-Track. The demographic data showed that the average age of the participants was 20 years old (SD 2.8), 79% females, 21% males, 37% white, non-Hispanic. 36% of the participants were seniors (see Table 1). Of the 24 participants, 66.6 % (n=16) completed the two follow-up visits as scheduled. 12.5 % (n=3) completed only the first visit. 20.8 % (n=5) did not complete the week 2 follow-up visit. Two of three participants who only had the first visit did not continue with the project because one participant was not seeking a pharmacological treatment and another was found, during the first visit, to have a complex psychiatric history making him or her not a suitable candidate for the Fast-Track. This participant initially did not

disclose the complex psychiatric history upon screening. Therefore, pharmacological treatment was not initiated for these two participants.

Data was analyzed using 16 participants who completed the scheduled visits. The primary outcome of this project, time to treatment in days was reduced from 19.2 days (SD 4.6) to 2.5 days (SD 1.8) post implementation of the Fast-Track (p=0.0000000000000017) (see Figure 1). The result was very significant. 8 of 16 participants were able to see a primary care provider one day after they entered the Fast-Track. This was possible because the new practice flow allowed reserving the designated appointment slots only for the Fast-Track patients. One participant took 8 days to see a provider, but that was due to his pre-scheduled trip out of town.

The mean PHQ-9 score at the baseline visit was 13.6 (SD 4.1) and 11.4 (SD 2.5) at the second follow up visit between week 5 or 6 with a mean change of 2.2 (see Figure 2). Overall, 81.3% (n=13) of participants reported improvement and 18.6 % (n=3) reported worsening of their depression symptoms. Of the medications prescribed, 73% were SSRIs, 9% SNRIs and 18% were other medications which included benzodiazepines, anxiolytics, and serotonin modulators (see Figure 3).

Discussion

The result of the Fast-Track project confirmed that reserving the appointment slots of primary care providers was effective in reducing wait time for depressed patients who are willing to consider pharmacological treatment. This open-access, also known as advanced access or same-day scheduling approach used in the project, is not a new concept in healthcare systems. Although there are not many recent studies about the effectiveness of this approach, the article by Murray and Tanau (1998) shows that several health organizations successfully reduced the

wait time for routine appointments by utilizing this approach (Murray & Tantau, 1998). The result of this project is similar to the study by Murray and Tantau.

The secondary outcome of the project was the PHQ-9 score. The mean PHQ-9 score at week 2 did not show any changes compared to the one at the baseline, but there was an 8.1 % mean change (-2.2 score) at the second follow-up visit, which occurred either at week 5 or 6. This finding is consistent with the commonly known trajectory of symptom change (4- 12 weeks) by antidepressant treatment, although there might have been many contributing factors to this improvement.

The findings of this project imply that accurate identification of college students with simple, uncomplicated depression and open-access scheduling workflow can expedite safe pharmacological treatment by primary care providers.

The project contributed to expanding the Advanced Practice Registered Nurses' (APRNs) role at the SHC of the project site. Two nurse practitioners participated in the project and successfully treated and managed the participants. These APRNs expressed that they felt more confident in managing and treating depression among college students, post-implementation of the project. Most staff and providers at the project site perceived this project very positively.

There are several limitations and areas to improve in this project. First, due to time restraints and a slower start with staff training, fewer participants were enrolled in the Fast-Track than initially expected to enroll (50 participants). With a larger number of participants, the benefit of this project would have been even more significant. The second, since this was a QI project, not research, consideration to control factors affecting the efficacy of antidepressants was not in place. Therefore, there is a greater possibility that the improvement of depression symptoms made by the second follow-up visit might have been affected by other factors than

medication. Third, the project duration was 6 weeks. Therefore, there was not enough time to continue to follow up on the patients to see a more significant change in their PHQ-9 scores. Finally, the project was conducted in a single SHC, and the service population saw 37% white non-Hispanic, 79% female and 36% Seniors. Therefore, results might not be generalizable to different settings.

The area of improvement is to add the MA template in the EMR system. This was suggested from the beginning of the project but never came to fruition due to challenges within the IT department. This new modification will aid in effective communication as the template offers a quick guide for providers on who referred the patient, if their insurance was checked, if the patient was screened for the criteria, ready to start medication and was ready to read the Q&A before the Fast-Track appointment.

The sustainability of this project is very high due to the buy-in from the medical staff. The SHC medical staff felt the need for a change in depression management due to a long wait time for the appointment with a psychiatrist. The medical director of the psychiatric department at the SHC was on board from the beginning of the project development. The staff was agreeable to the new changes and found the shift towards handling simple, uncomplicated depression easier than initially expected. The strong administrative support and sufficient resources are additional factors for the high sustainability of the project. The new workflow has continued post-completion of this project.

Conclusion

This DNP project was conducted at the SHC in one of the tertiary public universities in Southern California to address the prolonged wait time for depression treatment in college students. The results showed that open-access scheduling that allows the designated appointment

slots of primary care providers improved the long wait time from 19.2 days to 2.5 days. In addition, it showed that utilizing primary care providers, including APRNs, in the management of simple, uncomplicated depression for college students was safe and successful. The outcomes seen in this project offer some insight into how the pharmacological treatment for simple, uncomplicated depression can be safely initiated sooner among college students. This project hopes to inform other student health clinics and medical professionals about the benefit of effective and expedited depression management in the college student population.

The development and implementation of this project assisted the DNP student (project lead) in achieving the DNP Essentials to become a competent DNP-prepared Scholar in various ways. Organizational and systems leadership (Essential II) are essential to improve patient and healthcare outcomes. The Fast-Track project created the opportunity for the project lead to understand practice management principles that helped identify a gap in practice for the project. It provided a learning opportunity to build advanced communication skills. In addition, the project lead was able to learn how to be more sensitive to a diverse organizational culture and population, including patients and providers. While doing a comprehensive literature review and synthesis along with a critical appraisal of existing literature and other evidence, the project lead built a foundation of competencies of Essential III (Clinical Scholarship and Analytical Methods for Evidence-Based Practice).

The project planning and implementation required multiple meetings with multidisciplinary teams. This assisted the project lead to learn consultative and leadership skills with intra-professional and interprofessional teams to create change in health care and complex healthcare delivery systems. Through this experience, the project lead was able to achieve the

competencies of DNP Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes.

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APPENDIX A
Site approval

Letter of Cooperation with Outside Organization for UCI DNP Project

Date: 10/15/2021

Dear: (name of DNP Student): Samantha James

This letter confirms that I, as an authorized representative of
allow the above-named Doctor of Nursing Practice student access to conduct a leadership, policy, quality improvement, or evidence-based practice project activities at the listed site(s) as discussed with the DNP student and outlined below. These activities may commence after the DNP student has consulted with UCI IRB about the proposed project.

- **Project site(s):** (list specific site name and address for all sites within which the organization is providing student access to conduct the project)

  Student Health Services
  UCSB
  M/C 7002 SB, CA 93106-7002

- **Project purpose:** (briefly summarize the project purpose, plan and expected outcomes)

  Expedite pharmacological tx for depression, increase access, reduce depressive sxs faster, increase patient autonomy and ownership of management through educational material prior to visits.

- **Project activities:** (briefly summarize the activities that will commence at the site, including any baseline data collected, educational interventions, PDSA cycle proposed...)

  Baseline data on how many depression diagnoses within a few months, compare and contrast to that of the project.

- **Target population:** (identify the population upon whom the project will focus)

  Students who utilize the UCSB student health clinic for mental health complaints.

- **Site(s) support:** (briefly describe the support the project site(s) agree to provide to support the project, such as space to conduct project activities, data retrieval from electronic records, facilitation of educational activities....)

  Data retrieval from electronic records.

- **Data management plan:** (briefly describe the plan for management of data such as what data will be collected, whether it will be identified/de-identified, what protections will be in place for data protection...)

  Demographics: age, race, gender, PHQ9 scores, duration of time to treatment and follow up.

- **Other agreements:** (briefly describe any additional agreements that have been made to support the project, if applicable)

  Access to EHR, contact with SW, ADP and other entities within UCSB.

- **Anticipated end date:** (indicate the anticipated date that the project will be concluded at the site)

  Winter quarter.

It is understood that all DNP Scholarly Project related activities must cease if directed by UCI IRB. It is also understood that any activities that involve Personal Private Information or Protected Health Information must comply with HIPAA Laws and institutional policy.

Our organization agrees to the terms and conditions stated above. If there are any concerns related to this project, we will contact the DNP student named above and their DNP Scholarly Project Chair. For concerns regarding IRB policy or human subject welfare, we may also contact our own institutional IRB.

UCI IRB: https://www.research.uci.edu/compliance/human-research-protections/researchers/irb-faqs.html

With regards,

VM> Behavioral Health Director

(Signature of Project site authorized representative) (Job title of authorized representative)

10/21/2021

(Date signed)

Appendix B
Kuali Approval Email

From: **Kuali Notifications** no-reply@kuali.co
Subject: Confirmation of Activities that DO NOT Constitute Human Subjects Research
Date: December 28, 2021 at 9:40 AM
To: samantej@uci.edu

KN

Dear Samantha Eynon James,

The University of California, Irvine (UCI) Human Research Protections (HRP) Program complies with all review requirements defined in 45 CFR Part 46 and 21 CFR 50.3.

Based on the responses provided in Non Human Subjects Research (NHSR): #680 - "A fast-track model for depression for college students ", and per the definitions cited below, the activities do not constitute human subject research or a clinical investigation, as applicable. Therefore, *UCI IRB review is not required and will not be provided.*

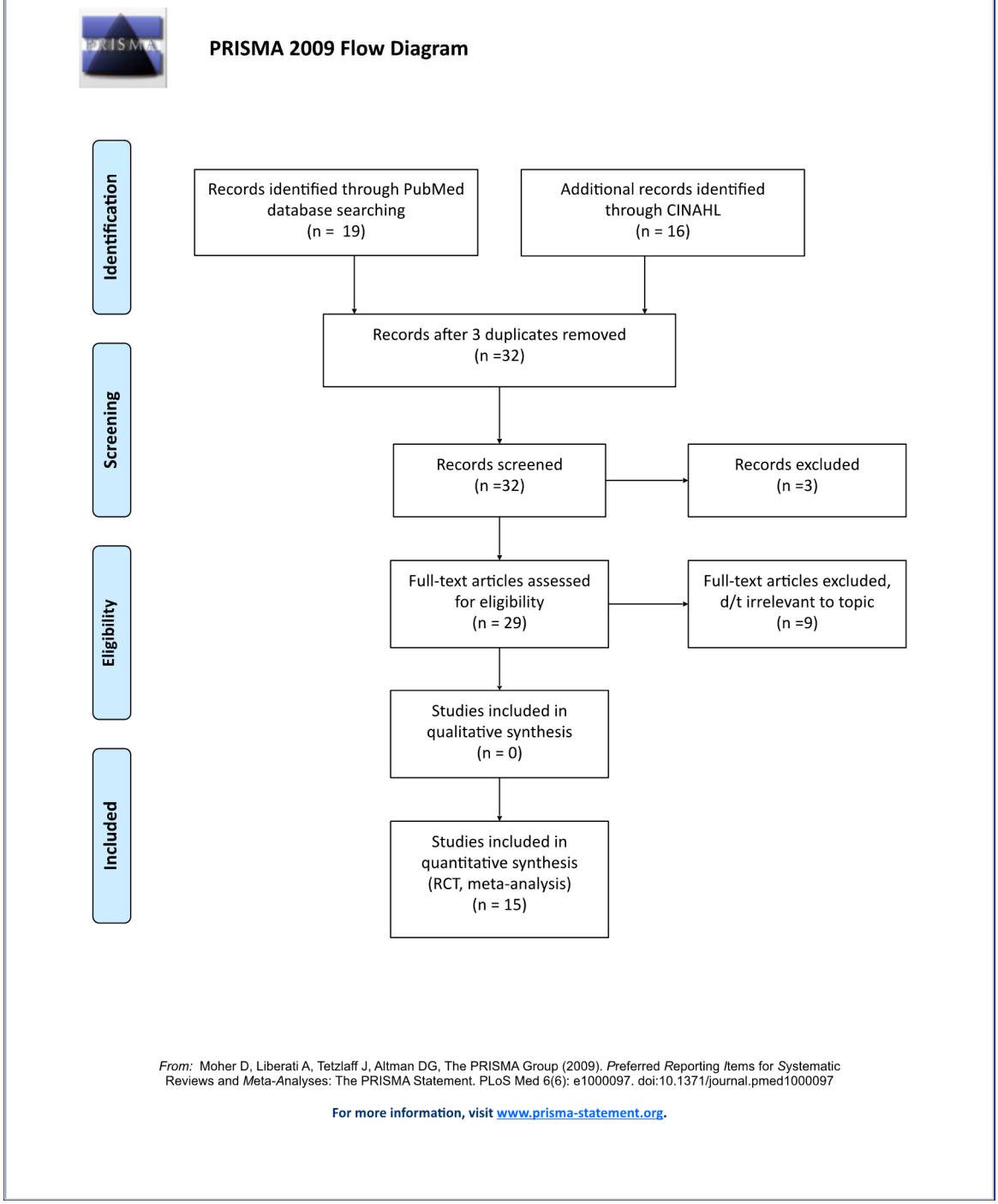
45 CFR 46.102(l) defines research as "a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge; and 45 CFR 46.102(e)(1) defines a human subject as "a living individual about whom an investigator conducting research obtains (i) Obtains information or biospecimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or biospecimens; or (ii) Obtains, uses, studies, analyzes, or generates identifiable private information or identifiable biospecimens."

21 CFR 50.3(c) defines a clinical investigation as "any experiment that involves a test article and one or more human subjects and that either is subject to requirements for prior submission to the Food and Drug Administration under section 505(i) or 520(g) of the act, or is not subject to requirements for prior submission to the Food and Drug Administration under these sections of the act, but the results of which are intended to be submitted later to, or held for inspection by, the Food and Drug Administration as part of an application for a research or marketing permit."

To view the determination for your submission, click here: uci.kuali.co/protocols/protocols/61bcefb3ad6f0f002a3f4a3c

Please DO NOT REPLY to this email as this mailbox is unmonitored. If your project changes in ways that may affect this determination, please contact the HRP staff for additional guidance: irb@uci.edu.

Appendix C
PRISMA CHART



Appendix D
Table of Evidence

First author Title of the article	Design/ Method	Sample/Setting	Major valuables	Measurement	Data Analysis Method	Findings	Appraisal:

Huang (2018) Interventions for common mental health problems among university and college students: A systematic review & meta-analysis of RCT	Meta-analysis	51 studies, University/college students, depression, anxiety disorder, OCD or PTSD, RCT designs.	CT, mindfulness, attention perception modification, & other interventions.	Consolidated Standards of Reporting Trials.	Meta-regression analysis	Other interventions i.e., art, exercise, peer support, etc. had the highest effect size for depression.	High level of evidence. Good quality. Yes, will use.
Knapstad (2020) Effectiveness of prompt mental health care, the Norwegian version of improving access to psychological therapies: a RCT.	RCT	681 adults (≥18) d/t anxiety &/or mild- mod depression.	Investigate effectiveness of the PMHC tx compared to tx as usual (TAU) at 6-month f/u.	PHQ-9 & GAD-7 between baseline & f/u.	Quant. Inferential analysis	PMHC tx was substantially more effective than TAU in alleviating anxiety & depression.	High level of evidence. Good quality. Yes, will use.
LeBlanc (2015) Shared decision making for antidepressants in primary care: a cluster randomized trial.	CRT	117 clinicians, 297 patients from 10 practices (1 rural, 1 suburban, 8 urban).	DMC aid to improve pt engagement, quality of decision making as by pts & clinicians, & depression outcomes.	PHQ-9 at entry in the study, 3 months, & 6 months.	Adjusted t-tests, $\chi 2$ tests, & hierarchical generalized linear models.	Use of DMC by pcp's & pts w/ depression was feasible & effectively improved pt knowledge & engagement.	High level of evidence. Good quality. Yes, will use.
Liu (2019) The prevalence & predictors of mental health diagnoses & suicide among US college students: Implications for addressing disparities in service use.	Cross sectional study	67,308 degree-seeking undergraduate students from 108 institutions.	Measured stress, anxiety, depression, suicidal ideation among college students.	American Health Association-National College Health Assessment	Logistic regression analysis.	1 out of 4 students reported mental health conditions, & 1 out of 5 had SI.	Low level of evidence. But since it has a huge sample credibility of data increased. Yes, will use.
Magnani (2016) Treating depression: what patients want; findings from a RCT in primary care.	RCT	170 patients from university-based psychiatric consultation-liaison services.	Comparing interpersonal counseling (IPC) vs SSRI for primary care patients' w/ depression.	MINI Plus, Hamilton Rating Scale for Depression & the Work & Social Adjustment Scale.	χ^2 and t-test, multiple regression analysis	Counseling for mild & pts w/ moderate or severe depression more likely to prefer medication	High level of quality evidence. Good quality. Yes, will use.

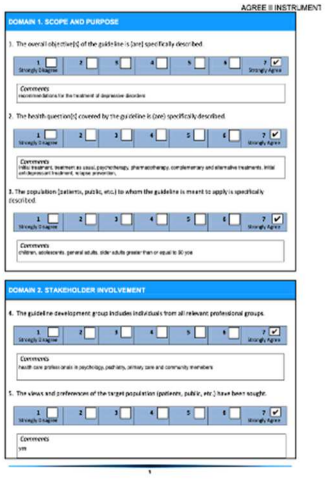
Perestelo- Perez (2017) Effectiveness of a decision aid for patients with depression: a randomized controlled trial.	RCT	147 Adults diagnosed with a MDD in primary care centers.	Assess the effectiveness of a web-based decision aid for pts with unipolar depression.	Knowledge about tx options, decisional conflict, tx intention & preference for participation in decision making. BDI.	T- test & $\chi 2$, multiple linear regression models.	The decision aid "Decision making in depression" is effective improving knowledge of tx options & reducing decisional conflict of pts w/ unipolar depression.	High level of evidence. Good quality. Yes, will use.
Kriston (2014). Efficacy and acceptability of acute treatments for persistent depressive disorder.	Meta-analysis	A network of 45 trials that tested 28 drugs included data from 5,806 & 5,348 patients concerning efficacy and acceptability, respectively.	Trials that compared drugs w/ each other or placebo. The 2nd network included trials that compared psychotherapeutic & combined tx w/ each other, a drug tx, or placebo.	Used response, which was defined as at least 50% improvement on a sxs severity rating scale, as the efficacy outcome.	Analyses 2 tx networks using a Bayesian framework Summarized outcomes w/ odds ratios. meta-regression analyses to ID possible tx effect moderators	Acute pharmacological, psychotherapeutic, & combined tx for persistent depressive disorder are available	High level of evidence. Good quality. Will use.
von Wolff, (2013). Selective serotonin reuptake inhibitors & tricyclic antidepressants in the acute treatment of chronic	Meta-analysis	20 studies with 22 relevant comparisons. Only RCTs were considered.	Effectiveness between SSRIs and TCAs and placebos	Primary efficacy outcome was a response to tx	Benefit Ratio, Odds Ratio	Provides evidence for the efficacy of both SSRIs & TCAs in the tx of chronic depression & showed a better acceptability of SSRIs	High level of evidence. Ok quality. Yes, will use.
Martinez (2018) Utilizing education and perspective taking to remediate the stigma of taking antidepressants.	RCT & Cross-sectional study	147 senior undergraduate students from a large state university in the United States	Compared education, perspective taking, combined & control.	After manipulation & engaging in the writing task, participants responded to questions r/t people who take antidepressants.	ANOVA, 3 t tests- combined vs control, combined vs ed, & combined vs perspective taking to examine differences.	Stigma could be reduced through education & perspective taking interventions	High level of evidence. Ok quality. Yes, will use.

Cipriani (2018). Comparative efficacy and acceptability of 21 antidepressant drugs for the acute treatment of adults with major depressive disorder.	Meta-analysis	Identified 28,552 citations & of these included 522 trials comprising 116,477 participants, ≥18 years old and of both sexes	Included double-blind, RCTs comparing antidepressants with placebo or another active antidepressant as oral monotherapy.	Response rate measured by the total number of patients who had a reduction of ≥50% of the total score.	OR for dichotomous outcomes & standardized mean differences for continuous outcomes using pairwise & network meta-analysis	All antidepressants were more effective than a placebo.	High level of evidence. Good quality. Yes, will use.
Kennedy (2016) Canadian Network for Mood and Anxiety Treatments (CANMAT) 2016 Clinical Guidelines for the Management of Adults with Major Depressive Disorder:	Meta-analysis	45 RCTs (N = 5804) involving 28 drugs	Most of the studied drugs were more effective than placebo, including fluoxetine, paroxetine, sertraline, moclobemide, and imipramine.	Evidence-informed responses given for 21 questions under 4 broad categories. Evidence graded using CANMAT-defined criteria for level of evidence.	Systematic literature search focusing on systematic reviews and meta-analyses	Pharmacological tx are available for 1st-line tx of MDD & for management of inadequate response.	High level of evidence. Ok quality. Yes, will use.
Rotenstein (2016) Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students	Meta-analysis	195 studies involving 129 ,123 medical students in 47 countries	Depression or depressive sxs and SI data.	BDI, CES-D, and PHQ-9	χ^2 tests and the I^2 statistic used to assess between-study heterogeneity	Depression or depressive symptoms among medical students was 27.2% & that of SI was 11.1%	High level of evidence. Good quality. Yes, will use.
Cuijpers (2016) Psychological treatment of depression in college students.	Meta-analysis	15 trials on college students, included 997 participants.	Comparing psych tx of depressed college students to control & compared sizes to those in unselected populations of depressed adults.	Levels of cognitive functioning and IQ and higher proportions of first-onset cases.	Simple mean comparisons & multivariate meta-regression analyses of trials.	Psychological tx of depression in college students suggests that these therapies are effective	High level of evidence. Good quality. Yes, will use.

Ebert (2019) Increasing intentions to use mental health services among university students.	Cross section al study	13,984 university students	Web based questionnaire	Intention to use mental health services, barriers to tx, mental disorders, SI, stages of change, tx utilization	Odds ratio, Multivariate regression models adjusted for socio-demographic, college, & tx related variable	The majority of 1st year college students report that they would be hesitant to seek help in case of future emotional problems	Low level of evidence. But since it has a large sample which increases credibility of data. Yes, will use.
Ebert (2015) Increasing the acceptance of internet-based mental health interventions in primary care patients with depressive symptoms.	RCT	128 PCP patients at least 18 yoa, with minor or major depression awaiting treatment	Informational video about IBIs before receiving a questionnaire that assessed their acceptance of IBIs and other secondary outcomes and compare to a control group.	PHQ-9	Chi-square, Fishers' Exact test & independent tests	Acceptance of IBI for depressive sxs increased significantly using a brief acceptance facilitating intervention based on an info video.	High level of evidence. Good quality. Yes, will use.

Appendix E
Practice Guideline Appraisal: AGREE TOOLS

AGREE II Tool for APA


AGREE II INSTRUMENT

DOMAIN 1. SCOPE AND PURPOSE

1. The overall objective(s) of the guideline is (are) specifically described.

Comments
recommendations for the treatment of depressive disorders

2. The health question(s) covered by the guideline is (are) specifically described.

Comments
Main treatment, treatment as usual, psychotherapy, pharmacotherapy, complementary and alternative treatments. Initial and subsequent treatment, relapse prevention.

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.

Comments
children, adolescents, general adults, older adults greater than or equal to 30 yos

DOMAIN 2. STAKEHOLDER INVOLVEMENT

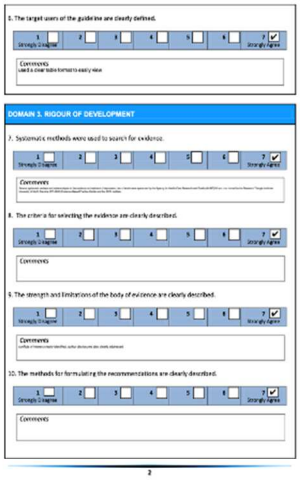
4. The guideline development group includes individuals from all relevant professional groups.

Comments
health care professionals in psychology, psychiatry, primary care and community members

5. The views and preferences of the target population (patients, public, etc.) have been sought.

Comments
yes

1


5. The target users of the guideline are clearly defined.

Comments
used a clear table format to easily view

DOMAIN 3. RIGOUR OF DEVELOPMENT

7. Systematic methods were used to search for evidence.

Comments

8. The criteria for selecting the evidence are clearly described.

Comments

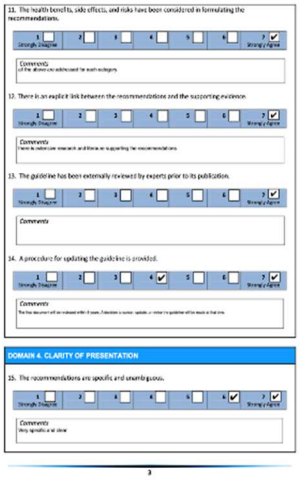
9. The strength and limitations of the body of evidence are clearly described.

Comments

10. The methods for formulating the recommendations are clearly described.

Comments

2


11. The health benefits, side effects, and risks have been considered in formulating the recommendations.

Comments
all the aforementioned be addressed for each subgroup

12. There is an explicit link between the recommendations and the supporting evidence.

Comments
have to make case research and literature supporting the recommendations

13. The guideline has been externally reviewed by experts prior to its publication.

Comments

14. A procedure for updating the guideline is provided.

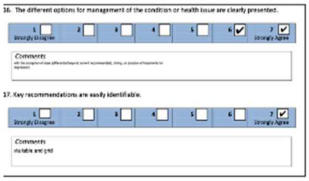
Comments
The final document will be reviewed within 3 years. If decision is made, update, or revise the guideline will be made at that time.

DOMAIN 4. CLARITY OF PRESENTATION

15. The recommendations are specific and unambiguous.

Comments
Very specific at all level

3


16. The different options for management of the condition or health issue are clearly presented.

Comments

17. Key recommendations are easily identifiable.

Comments
clutable and grid

DOMAIN 5. APPLICABILITY

18. The guideline describes facilitators and barriers to its application.

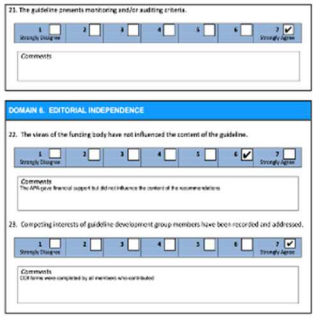
Comments

19. The guideline provides advice and/or tools on how the recommendations can be put into practice.

Comments

20. The potential resource implications of applying the recommendations have been considered.

Comments


21. The guideline presents monitoring and/or auditing criteria.

Comments

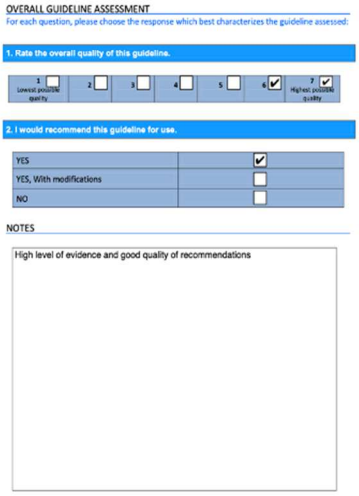
DOMAIN 6. EDITORIAL INDEPENDENCE

22. The views of the funding body have not influenced the content of the guideline.

Comments
The APA gave financial support but did not influence the content of the recommendations

23. Competing interests of guideline development group members have been recorded and addressed.

Comments
COI forms were completed by all members who contributed


OVERALL GUIDELINE ASSESSMENT

For each question, please choose the response which best characterizes the guideline assessed:

1. Rate the overall quality of this guideline.

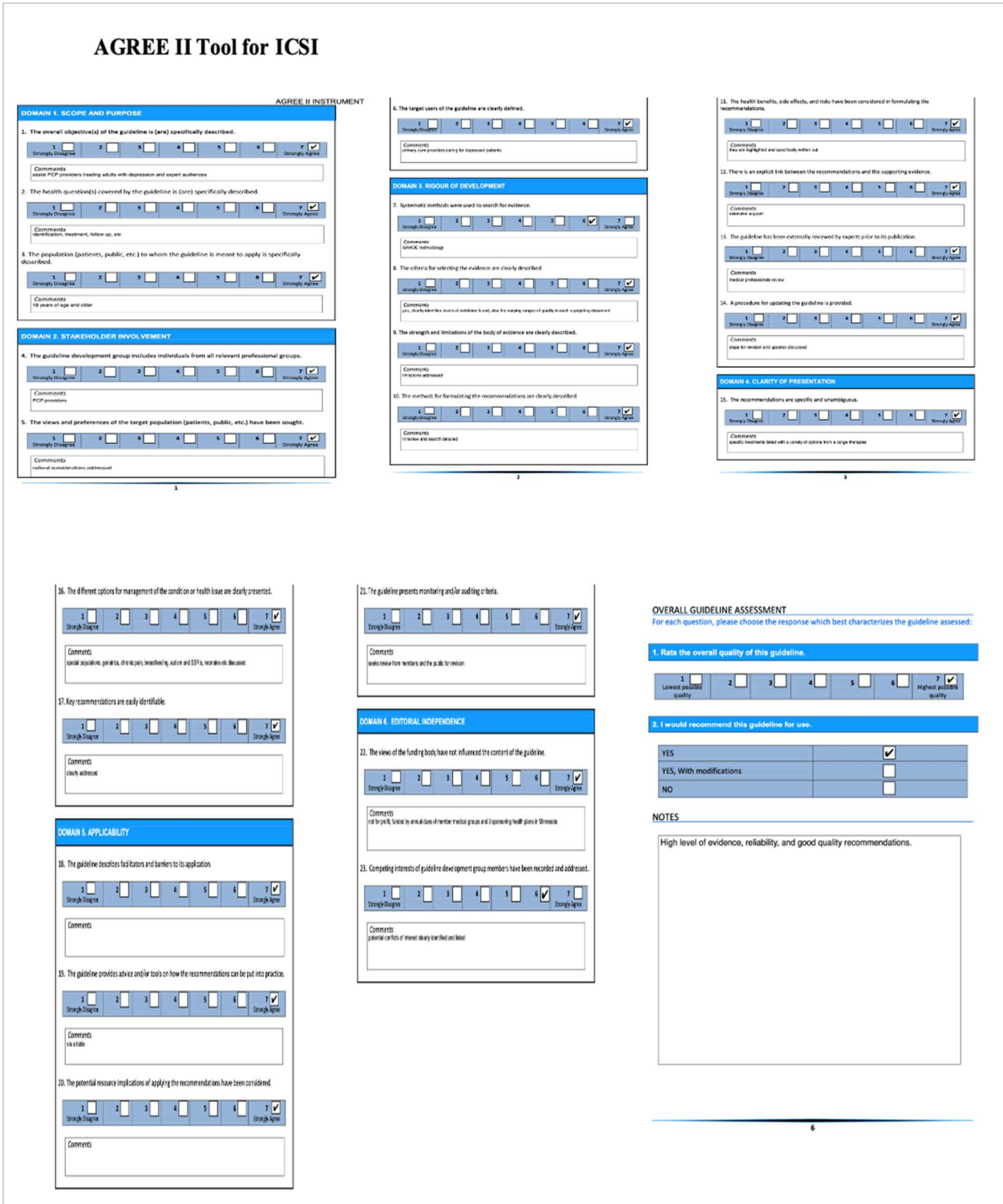
Lowest possible quality — Highest possible quality

2. I would recommend this guideline for use.

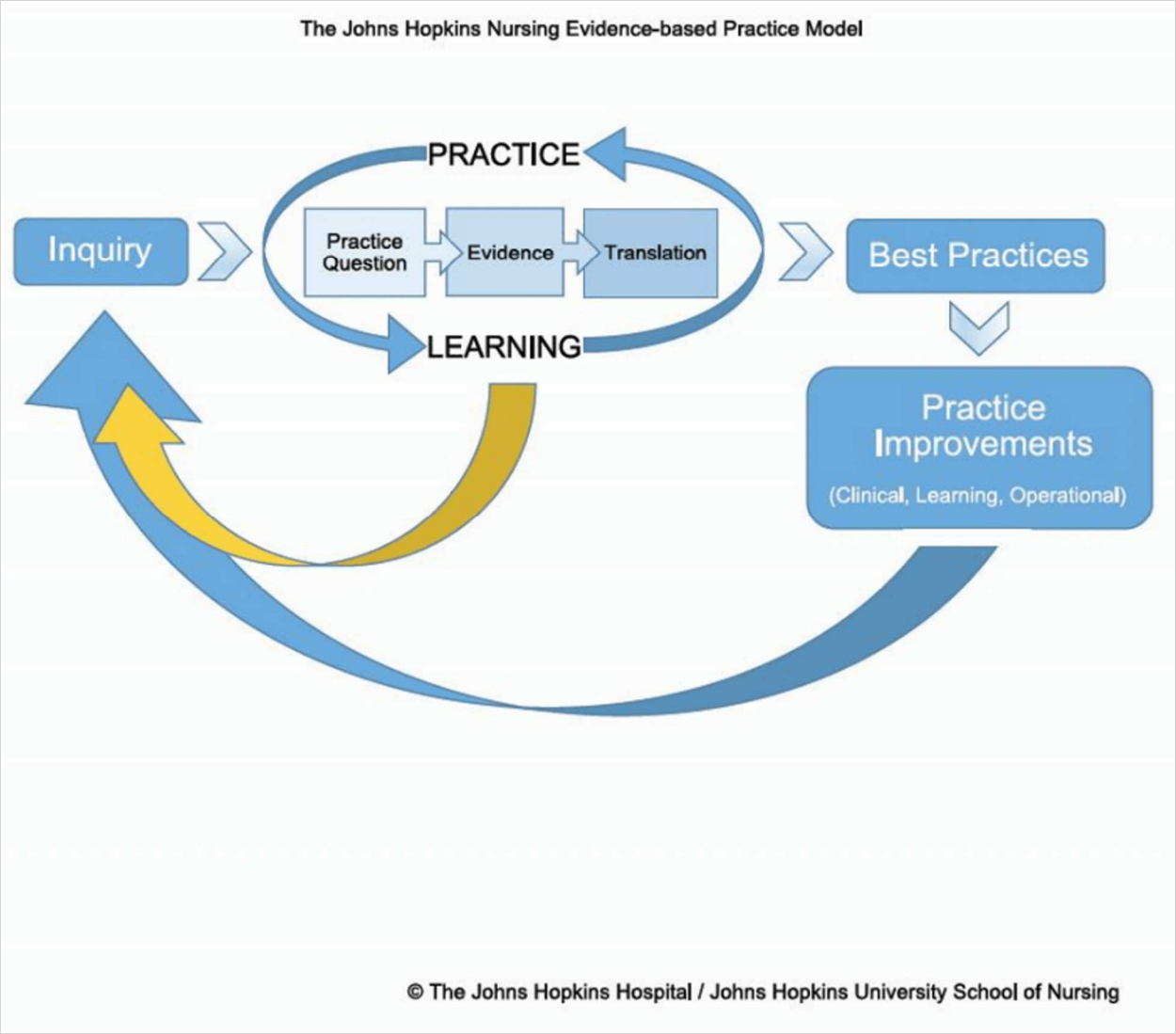
YES	✓
YES, With modifications	
NO	

NOTES

High level of evidence and good quality of recommendations



Appendix F
Johns Hopkins' EBP Model



Appendix G
Logic Model

Fast Track Model for Depression Treatment

Objectives:	Expedite treatment & decrease depressive symptoms.		Goals:	Implement a better process of managing depressed patients.	
Internal Process			External Results		
Inputs/ Resources	Activities	Outputs	Short-term Outcomes	Intermediate-Outcomes	Long-term Outcomes/ Impact
Meeting with IT for adding to patient portal.	ID depressed students	UCSB student health clinic.	Change in flow process of treating depression among providers.		
Technology for data collection and tracking tools.	Check in with providers to reinforce new process flow.		Expedited depression care.		Change in collaborative care environment.
Collaboration between primary care providers and psychiatry.	Check in with MAs to ensure new model's scheduling plan.	Students who are depressed.	Implement faster identification, referrals and follow up.	Change in provider practice.	Decreased relapsed depressive patients.
Buy in from stakeholders: all staff and management with meetings, emails, discussions, and presentation.	Send email reminders to providers when going live, reminders throughout implementation phase, follow up emails and meetings to discuss how smooth it is going and went.	Depression handouts on pharmacological treatment options.	Increasing patient autonomy and ownership of depression management.	Change in policies regarding treating depression.	Improved health status.
Educating MA's on the new models scheduling plan.	Track data and document in REDcaps.				
Time for research.	Provide resources for depression treatment.				
Flyer for project to give out to all staff.	PHQ9 pre & post treatment.				

Appendix H
PHQ-9 Form

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

ID #: _____ DATE:_____

Over the last 2 *weeks*, how often have you been bothered by any of the following problems? *(use "✓" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so figety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
add columns		+	+	
(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card).	TOTAL:			

10. If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?	
	Not difficult at all _____
	Somewhat difficult _____
	Very difficult _____
	Extremely difficult _____

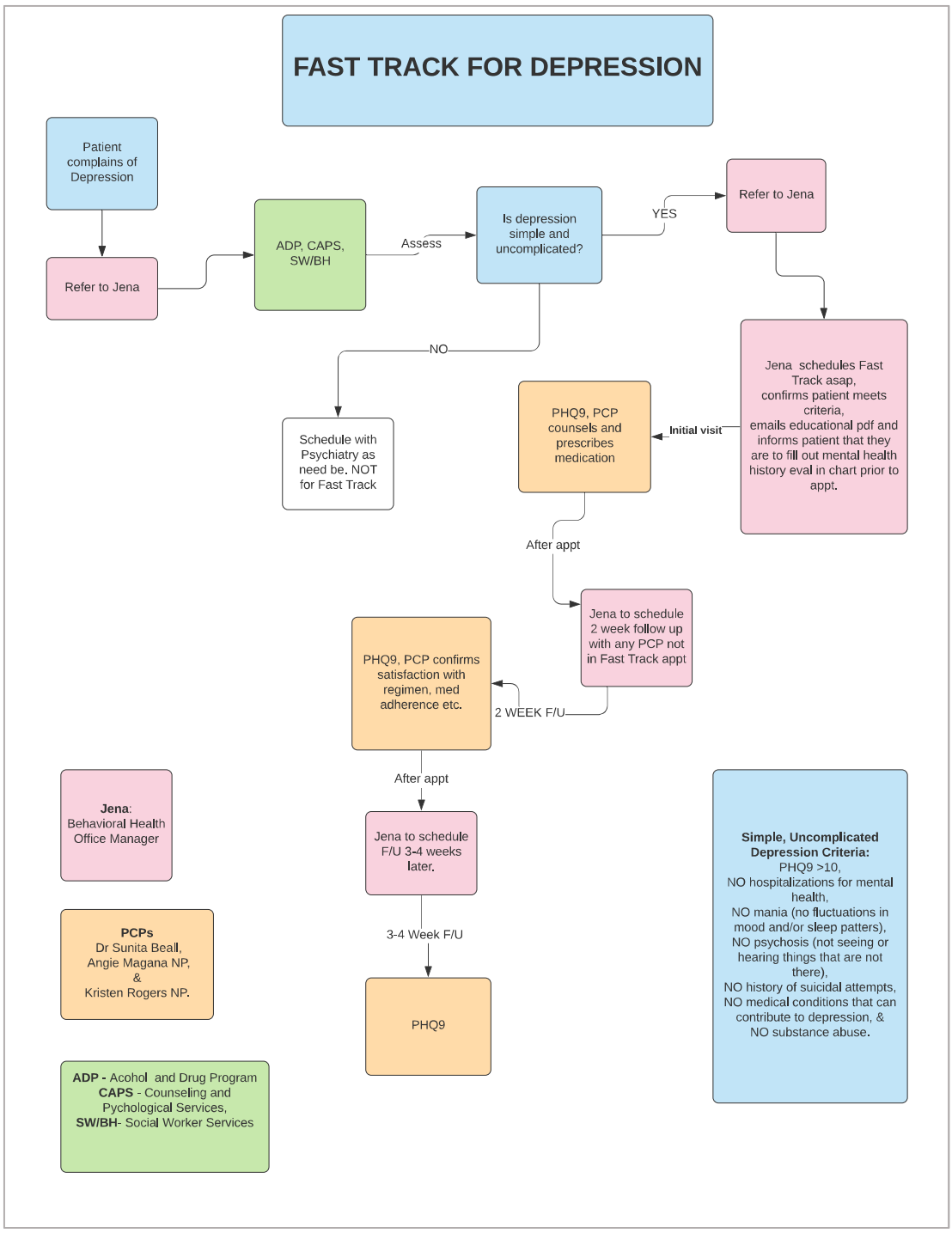
A2663B 10-04-2005

APPENDIX I
Formative Evaluation Questionnaire

1. Are the patients in Fast-Track meeting all the inclusion criteria?

2. If not, how did they not meet criteria?
3. Who was the referring provider from those patients who did not meet criteria?
4. Can you think if there is anything that is missing or needs clarification on?
5. Are you feeling comfortable managing and treating these patients?
6. Is everyone receiving the pdf Q&A once the Fast-Track appt is made?
7. Does everyone who has an appointment with Fast-Track fill out the pre-appt medical health history questionnaire beforehand?
8. Is everyone filling out a PHQ9 form on arrival?
9. Are there enough openings to get patient's seen within a few days to a week?
10. Are patients reading the Q&A beforehand?
11. Are the patients ready to discuss and start pharmacological treatment?
12. Have there been any no shows?
13. Have any patients cancelled?
14. What are the reasons for patients not following through with the appointments?

Appendix J
Fast-Track Workflow



Appendix K
Antidepressant Educational Handout

Depression and Use of Antidepressants

What is clinical depression?

Everyone gets depressed. Life is full of ups and downs. Stresses, unfulfilled wishes, and misfortunes make us feel sad or blue, but usually we bounce back, deal with our issues and move

on … no treatment necessary. But what happens if you get down and can't get back up? What if you are so sad that it affects your studies, friendships, family, work, or health? What if life is such a struggle that you want to give up? Then you might have clinical depression. Clinical depression is more than having a bad day. The diagnosis of clinical depression is based on well-established criteria. Depression is an illness, not a choice. It's a problem of brain chemistry, not personal weakness. Unfortunately, many people think that it is their fault or a consequence of poor behavior. It isn't. You didn't "will" yourself into a depression and you can't "will" yourself out of a depression.

How common is depression?
Depression is very common among college students (and everyone else for that matter!). In college student surveys, about 24% said they were depressed. In the general population, one out of four women and one out of ten men will have depression in their lifetime. You are not alone.

What contributes to depression?
The leading hypothesis is that depression is a chemical imbalance in your brain, a problem with your levels of serotonin, norepinephrine and/or dopamine. These "neurotransmitters" are responsible for the way you feel.

So, what causes the imbalance? Probably a lot of things.

- First and foremost is genetics. Depression frequently runs in families, and you may have inherited a tendency to it, especially if you have a relative with mental health issues. *Suggestion: Can you spot a trail in your family from one generation to the next? It's common.*
- Second is nutrition. A deficiency of B vitamins, minerals, and essential omega-3 fatty acids (EPA and DHA found in fish oil) can all contribute to depression but are seldom the only reason. High sugar diets, soft drinks and junk food don't help. *Suggestions: Take a high-quality daily multivitamin and a fish oil supplement every day. Clean up your diet. Eat less sugar.*
- Third is exercise. Humans are made to move. You can help mild depression with regular physical exercise, particularly walking outdoors. Paradoxically, frequent, heavy exercise probably worsens depression as it wears the body down. *Suggestion: Walk, ride a bike, lift weights for 30 to 60 minutes several days a week, preferably outdoors.*
- Fourth is sunshine. Many people become depressed in the autumn, winter, and early spring, only to feel fine in the summer. This "sunshine deficiency syndrome" is called Seasonal Affective Disorder (SAD) or the Winter Blues. It is very common. *Suggestions: Get outdoors when you can. Sunlight is healthy in moderation, just use common sense and don't overdo it. Alternatively, sit in front of a special full-spectrum light for 30 to 60 minutes each day during the darker months. Take 1,000 IU of Vitamin D every day.*
- Fifth is stress, typically a combination of heavy academic workload, relationship issues, financial worries, loss of a loved one, and the other misfortunes of life. Sometimes the most stress is that which you put on yourself through high expectations that are unmet. Your personality, life experiences and learned coping skills have a major impact on your resilience to stress and depression. *Suggestion: Talk to someone in CAPS (Counseling and Psychological Services) about managing your stress better.*

- Sixth is substance abuse. The usual offenders are caffeine, alcohol, tobacco, and illegal drugs. *Suggestion: All things in moderation.*

In summary, your depression is a combination of chemical, genetic, environmental, physical, and psychological factors, some of which you can change, some you can't.

What are the symptoms of depression?
Depression may present with many symptoms related to a problem neurotransmitter … serotonin, norepinephrine, or dopamine. If you have several of these symptoms for more than two weeks, you may have clinical depression.

You may be serotonin deficient if …
- You feel unusually agitated, anxious, and nervous nearly every day. (About 80% of depressed patients have coexisting anxiety while 20% do not report anxiety.)
- You worry excessively about things.
- You have the same thoughts over and over; you obsess about things.
- You cry for no reason.
- You feel sad, empty, down, blue or depressed most of the day, nearly every day.
- You have feelings of worthlessness or guilt nearly every day. Your inner voice is negative and pessimistic.
- You have low self-esteem or confidence.
- You crave sugar, alcohol, or marijuana to improve your mood.
- You have chronic unexplained pains like headaches and back aches.
- You are irritable, impatient, or edgy at times for no reason.
- You have recurrent thoughts of death or wish you wouldn't wake up in the morning.

You may be dopamine deficient if …
- Your motivation is low.
- You are socially withdrawn. You avoid people and social situations and want to be alone.
- You have little interest or pleasure in almost all activities most of the day. You can't enjoy things.

You may be norepinephrine deficient if …
- You have difficulty concentrating, making decisions, thinking, and maintaining focus.
- Your short-term memory is not very good.
- You are tired with a low energy level.

Other Symptoms
- You have had a marked increase or decrease in weight without trying.
- You sleep too much or don't sleep well.
- You have felt like harming yourself.

Should I take a medication?
It's your choice. If you are unhappy or dissatisfied with life or your depression is mild, then no. Get counseling and improve your health habits instead. If you are miserable and depression is

ruining your life and grades, then yes. The doctor can help you with your decision, but the final choice should be yours.

We realize that this is not an easy decision. Your parents and peers may have strong opinions against medication. You may worry how others will view you. You may want to "be strong" and not rely on a medication.

Remember that antidepressants correct a chemical problem much like medications for high blood pressure or diabetes. Unlike street drugs, they do not make your body do something it was not intended to do.

Psychotherapy is beneficial whether you decide to take a medication or not. Research supports a combination of medication and psychotherapy works the best.

I tried a medication in the past and it didn't work.
You may have taken the right medication but didn't take it long enough (4 to 6 weeks). Perhaps the dose was wrong for you. Maybe you needed a different medication. Finding the right medication requires time and patience. Try again under the close guidance of a prescribing clinician.

Role of the Student Health primary care providers.
For patients with mild to moderate depression, most antidepressants are prescribed by primary care clinicians such as primary care doctors, nurse practitioners, and physician assistants. Many times, one medication is all you need. If you have not responded to multiple antidepressants, your care will be transferred to a psychiatrist.

Which medication should I take?
With your input, the prescribing clinician will make the final decision. All antidepressants work equally well … whether the older medicines from 50 years ago or the newest medicines. Cost does not equal effectiveness. However, the older medicines have worse side effects, and the newer medicines are safer. The primary care clinician will consider:

- Preferences – Do you have a strong preference?
- Experience – What medicines have you or your relatives used before?
- Side effects – Some medicines make you calm, others active.
- Cost – Is cost an issue? Generics are much cheaper.
- Coverage – Will your insurance company pay?
- Convenience – Twice or once a day?

How much do they cost?
Some generic antidepressants are as inexpensive as $4 per month while some branded antidepressants cost $100 per month. Insurance companies cover the cost of most antidepressant medications and could require a $10-$25 co-pay. Generic medications could have a cash price of just $4 depending on what pharmacy you use.

How well do antidepressant's work?

You have a 70% chance that an antidepressant will make you feel better. Though not effective in everyone, there is a good chance that the medicine will relieve many of your depressive symptoms. You will feel and function better.

What is the dose?
The prescribing clinician will determine your dose based on your symptoms. Typically, we will start you at a low dose and gradually increase the dose. This limits side effects and allows you to take the least amount of medication.

How long before it starts working?
Most antidepressants take 4 to 6 weeks to reach their full effect. You may feel some effect after only 1 or 2 weeks, but don't decide the medication isn't working until you have taken it for one month.

How do I know if it is the right dose?
You and the prescribing clinician will meet regularly to discuss how you feel on the medication. Unlike diabetes and cholesterol medications, there are no blood tests to determine the correct dose. Our goal is to make you feel better with the least side effects.

How long should I take an antidepressant?
A typical episode of clinical depression lasts 6 to 24 months. We recommend that you take the antidepressant for 9 to 12 months and then wean off. If your depressive symptoms return within one to two years, you may need to take the antidepressant for a full two years. If you have a lifelong depression rather than an acute episode, you may need to stay on the medication for life. Once treated for an acute depression, you will have a 50% chance that you will need it again sometime in your life. If you quit the antidepressant too early you risk having a relapse.

What are the common side effects?
Most people report a dry mouth when taking antidepressants. During the first week of treatment or after increasing the dose, many people feel a little tired and yawn more than usual. This typically goes away rapidly. Occasionally, some people have nausea, lightheadedness, nightmares, change in sleep, cramps, or diarrhea. Rarely does anyone have an acute allergic reaction. Weight gain can be an issue with some medications. The official weight increase is five pounds over six months, though some people gain more. Part of this is from an increased craving for carbohydrates so try to avoid sweets and sugar. Antidepressants can also reduce interest in sex and delay orgasm. While continuing the antidepressant, most side effects improve with time. The prescribing clinician will not force you to stay on the medication if it makes you feel bad. If you have bipolar disorder (manic depression) or schizophrenia and take a serotonin enhancing substance, you may get suddenly worse. Stop the medication immediately and contact us if there is any question. Fortunately, this is rare, and we don't expect this to happen. Also, if you become restless, agitated, or constantly moving stop the medicine and see your prescribing clinician.

Will an antidepressant make me suicidal?
There have been some cases, particularly in teenagers, where the patient has an increase in suicidal thinking while taking an antidepressant. Most people do not. Your prescribing clinician will be monitoring you to see if this side effect is occurring.

Are Antidepressants Addictive?
No! Most people worry that antidepressants are addictive. Unlike fast acting tranquilizers, sleep medications and pain pills, slow acting antidepressants are not addictive … they don't provide the reward that drug seekers crave. They do not make you feel high or change your sensory experiences like street drugs.

However, antidepressants, like many prescription drugs, can cause physical dependency … so what's the difference?

Dependency means that your body has developed a physical tolerance and adaptation to a medication or substance. When you stop that medication, you may have withdrawal symptoms such as body aches, headache, fatigue, dizziness, or a general feeling of not being well. These symptoms last from a few days to a week and then go away.

Be aware that 80% of adults in America have a substance dependency … caffeine. Should you suddenly decrease or stop your usual intake of caffeine you may feel tired and headachy. Many medications cause withdrawal symptoms but NOT addiction. Addiction means that you CRAVE the medication or substance. Even if you know the drug is causing you harm, you can't stop taking it and you will do illogical or illegal behavior to continue taking it. Nobody craves antidepressants. This is because antidepressants are slow acting and do not cause euphoria.

At what time of day should I take an antidepressant?
Most people will take the medication in the morning. You are more likely to remember to take it then. However, if the antidepressant causes fatigue or drowsiness, then take it at night several hours before bedtime. You and your prescribing clinician can explore the best time for you.

What about alcohol?
There is no absolute contraindication to drinking alcohol while taking an antidepressant, but we don't recommend it.
Why?

- Alcohol is a depressant and may nullify the antidepressant effects of your medication.
- Combining alcohol with an antidepressant may cause drowsiness and decreased coordination leading to accidents or falls.
- The combination of alcohol and Wellbutrin (bupropion) will increase your risk of a seizure.
- Mixing alcohol with an MAO inhibitor (which we do not typically prescribe) could be lethal.

If you decide to drink while on an antidepressant, please limit yourself to one or at the most two drinks. Avoid getting drunk.

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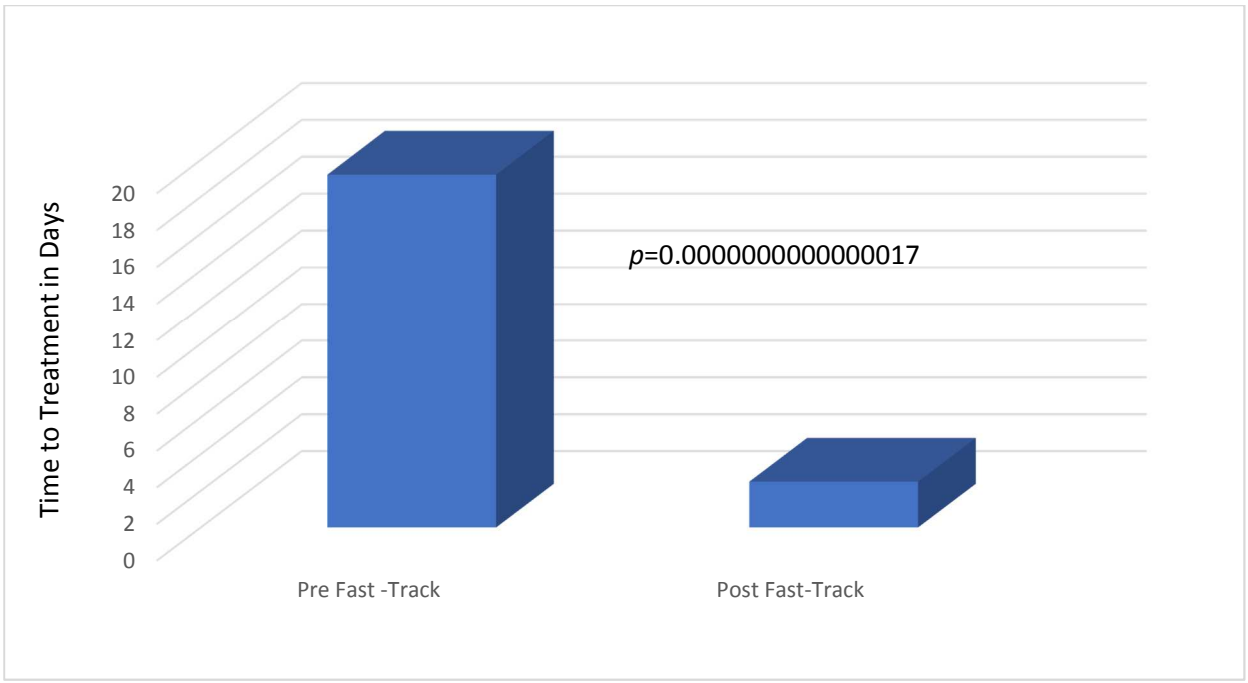


Figure 2
Secondary Outcome: PHQ-9 Scores

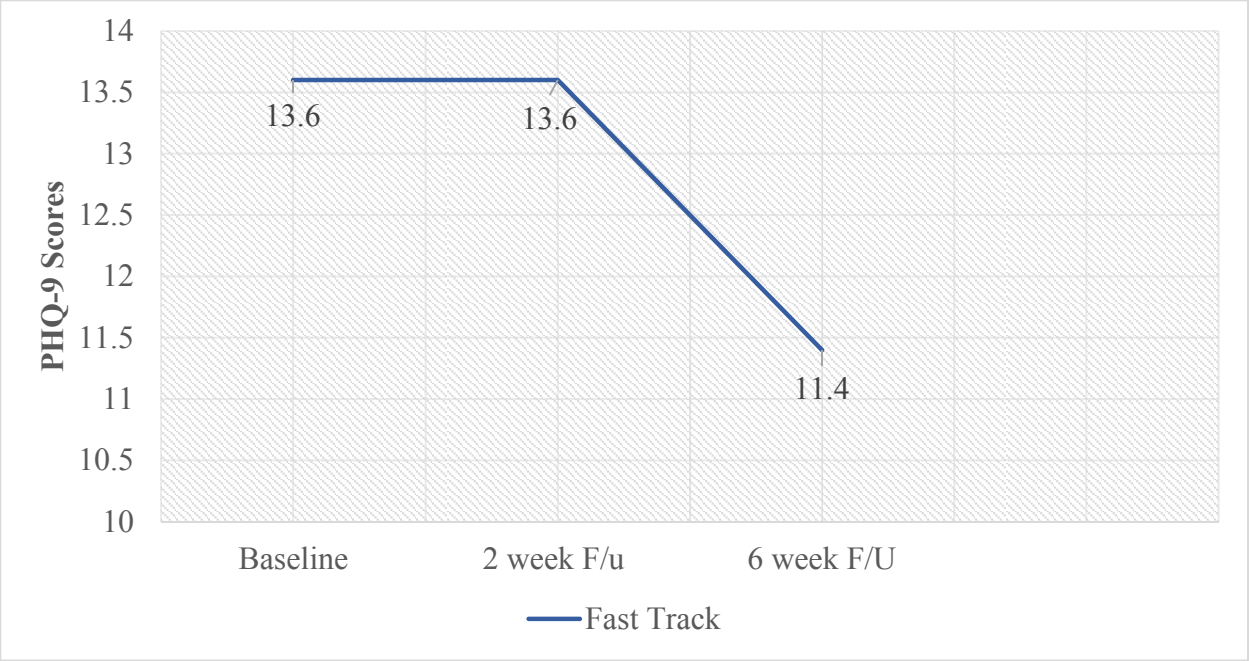
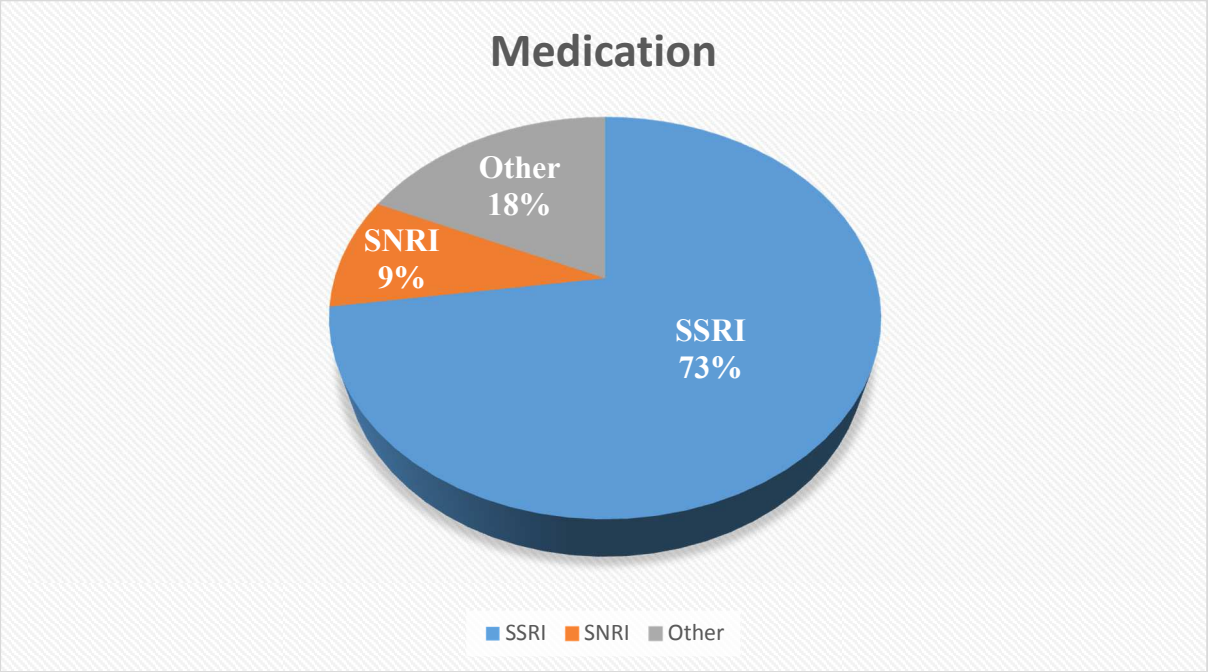


Figure 3
Distribution of Medication



Note: Other included benzodiazepines, anxiolytics, and serotonin modulators.

LIST OF TABLES

Table 1

Sociodemographic Characteristics of the Participants

Baseline Characteristics	Full Sample	
	n=24	%
Gender		
Male	5	21
Female	19	79
Ethnicity		
White	9	37
Hispanic	6	25
Asian	5	21
Black	1	4

Other	3	13
Year		
Freshman	4	16
Sophomore	6	24
Junior	3	12
Senior	8	36
Graduate	3	12