



Addressing Patients' Mental Health Needs at a Student-Run Free Clinic

Olivia Knoll¹ · Rohini Chakravarthy² · Joshua D. Cockroft² · Nicolas Baddour² · Shannon Jordan³ · Eleanor Weaver⁴ · Michael J. Fowler⁴ · Robert F. Miller⁴

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Abstract

Student-run free clinics are uniquely positioned to understand the barriers to accessing mental health resources. We abstracted patient demographics and clinical characteristics from 355 patient charts and examined referral patterns for a subset of patients. Seventy-three (21%) of patients were found to have a psychiatric diagnosis and were more likely to have more medical comorbidities (10 versus 6, $p < 0.001$), total medications (8 versus 6, $p < 0.001$, and to be English-speaking (odds ratio: 1.97, $p < 0.05$). Of patients who received a referral, 37 (60%) were referred to specialty treatment, the majority to a single outside agency provider. 15 (25%) of patients were interviewed. Barriers to successful referral included transportation and medical symptoms. A facilitator of successful referral was concern for individual's health. Language, social stigma, and cost were not cited as barriers. This study describes mental health needs at a SRFC and suggests opportunities for improvement.

Keywords Student-run free clinic · Mental health · Referral · Primary care · Vulnerable populations · Medical education

Background

Finding avenues for mental health treatment in vulnerable populations is critical to health promotion. Untreated mental illness significantly and negatively impacts multiple aspects of patient health. Diabetic patients with depression have worse glycemic control and more coronary artery disease than patients without (Soltani et al. 2015). Patients with both anxiety and depression have increased risk of physical

comorbidities such as obesity and chronic pain, among others (Scott et al. 2007).

Primary care providers are integral to screening patients for mental health needs and providing appropriate referrals. However, mental health needs often go unrecognized in traditional primary care settings. It is estimated that 5 to 10% of patients seen by PCPs suffer from depression, but only 50% of these patients are recognized (Soltani et al. 2015). This prevalence is even higher in low-income populations (The WHO World Mental Health Survey Consortium 2004). The World Health Organization (WHO) estimates that common mental disorders (such as depression) are nearly twice as common in low-income patients

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✉ Rohini Chakravarthy
rohini.chakravarthy@vanderbilt.edu

Olivia Knoll
olivia.m.knoll@vanderbilt.edu

Joshua D. Cockroft
joshua.d.cockroft@vanderbilt.edu

Nicolas Baddour
n.baddour@vanderbilt.edu

Shannon Jordan
shannon.w.jordan@vumc.org

Eleanor Weaver
Eleanor.weaver@vumc.org

Michael J. Fowler
Michael.j.fowler@vumc.org

Robert F. Miller
robert.f.miller@vumc.org

¹ Vanderbilt University, Nashville, TN, USA

² Vanderbilt University School of Medicine, Nashville, TN, USA

³ Department of Pediatrics, Vanderbilt University, Nashville, TN, USA

⁴ Department of Medicine, Vanderbilt University Medical Center, Nashville, TN, USA

than high-income ones (The WHO World Mental Health Survey Consortium 2004).

Even after successful identification of at-risk populations, many barriers to care prevent appropriate follow up. In traditional primary care settings, Cunningham demonstrated that it is twice as difficult for primary care physicians to achieve successful referrals to mental health providers compared to other specialties. Primary care physicians were surveyed and reported inadequate patient insurance coverage and lack of mental health specialists as the top two barriers to successful referrals (Cunningham 2009). Patients with low socioeconomic status (SES) have less health insurance coverage and more transportation barriers to accessing health care providers. Even after being seen by a mental health provider, these barriers continue to impede prescription access and follow-up appointment completion rates (Garfield et al. 2011; Piette et al. 2004; Rowan et al. 2013; Syed et al. 2013). The PHQ-9 appears to be validated in American Latinx populations (Merz et al. 2011); yet, monolingual Spanish-speaking patients are less likely to use mental health services, making it difficult to quantify the need in this population (Alegría et al. 2007).

These barriers lead to significant consequences. Without continuous adherence to recommendations of care, patients with depression are more likely to relapse (Cunningham 2009; Liberman et al. 2011). Patients with mental health conditions who missed more than two primary care appointments per year had an eightfold increase in mortality risk than those who missed no appointments (McQueenie et al. 2019).

While we have reviewed the literature around prevalence, referral patterns, and barriers to mental health referrals in primary care settings, mental health referral patterns in a student-run free clinic (SRFC) has not yet been studied. SRFCs are uniquely positioned to provide care to high-risk populations, including low-income and uninsured populations (Schutte et al. 2015). This study builds on previous literature to examine the success of a student-run free clinic in connecting patients to mental health care. In general, SRFCs have been shown to provide equivalent or superior care for general primary care needs such as hypertension (Wahle et al. 2017; Zucker et al. 2011), and diabetes (Gorindo et al. 2014). There is some evidence demonstrating the efficacy of mental health services in SRFCs. Soltani and colleagues demonstrated increased diagnosis of depression and reduced symptoms after mental health screening implementation among patients in primary care clinics at the University of California San Diego SRFC (Soltani et al. 2015). In another study, the quality of mental health care provided at the Mount Sinai School of Medicine SRFC—through a partnership with the academic medical center—met or exceeded that of commercial providers according to

Healthcare Effectiveness Data and Information Set (HEDIS) variables (Liberman et al. 2011).

Our descriptive study includes quantitative and qualitative data collected from a retrospective chart review of adult patients who visited the Shade Tree Clinic (STC), a SRFC in the southern United States, in 2016 along with semi-structured qualitative interviews conducted in 2017 of patients referred by STC's Social Work Department for mental health resources. The objectives of the study were as follows: (1) determine the burden of psychiatric disease in our population; (2) define referral patterns of patients with identified mental health needs; and (3) list barriers and facilitators to successful referral of these patients to community mental health resources.

Gathering data on the prevalence and barriers that exist within this unique patient population can guide future interventions. This data can inform if additional resources need to be dedicated to screening, if adequate community mental health resources exist, and if there are modifiable barriers to successful referral (i.e. resource awareness, transportation, case management).

Methods

Setting

Shade Tree Clinic (STC), located in Nashville, Tennessee, is a student-run, comprehensive primary care medical home for approximately 350 uninsured Middle Tennessee residents. Shade Tree provides primary care and social services to underserved patients through interdisciplinary service-learning experiences for medical students.

The Social Work Department at STC was established in 2005 to address our patients' socioeconomic factors that impact the health of our patients. Student volunteers work alongside a licensed social worker to connect patients with community resources. The referral database includes resources for housing, utilities assistance, employment, mental health, food, LGBTQ services, transportation, and substance use. Members of the STC Social Work Department regularly follow up with a panel of patients to provide additional support throughout application processes, resource referrals, and other processes that are difficult to navigate.

Shade Tree has provided a variety of psychiatric services since its inception. Currently, it offers a monthly Psychiatry Clinic for diagnosis, medication management, and referral to additional services at Vanderbilt University Medical Center at no cost. Each patient is seen by an interdisciplinary student team including clinical and preclinical medical and nursing students as well as a psychiatry attending physician.

Every STC patient completes an annual in-person social determinants of health screening evaluation and patients

who screen positive are referred to the appropriate community organizations. During this process, patients can self-identify a mental health need and be referred to see a psychiatrist at STC for medication management and/or be seen by an outside safety-net mental health provider for counseling. In addition, patients are screened bi-annually using a PHQ-9 tool, as recommended by the United States Preventive Task Force (Preventive Services Task Force US 2009). Patients who screen positive (> 10) are expected to meet with a licensed social worker following their appointment.

Patient Population and Participants

Retrospective Chart Review

All patients who visited STC in 2017 were included in retrospective chart review to assess cohort characteristics ($n = 355$). All patients seen at our SRFC were included in the study, thereby achieving the maximum possible sample size. Patients who carried a diagnosis of depression, adjustment disorder, anxiety, psychotic disorders, bipolar, and substance use disorders were included. This list of diagnoses was generated from a list of ICD-10 codes. Patients with depressed mood due to a medical condition were excluded as patients with a psychiatric diagnosis in the data set. A subset of patients was identified from this retrospective chart review to examine referral patterns. These patients ($n = 60$) had received a mental health referral from the STC Social Work Department in the prior year. This population was surveyed to assess referral patterns of these patients.

Semi-structured Interviews

All patients referred by STC's Social Work Department for mental health resources in 2016 were eligible to participate in semi-structured interviews. No patients were excluded. Interpretation services were used to interview patients who did not speak English.

Data Set and Procedures

Retrospective Chart Review

Retrospective data to assess characteristics of all patients seen in 2016 were collected from the electronic health record. Variables collected from chart review included: age, gender, language, race, psychiatric diagnosis frequency, medical diagnosis frequency, and psychotropic medication frequency. Diagnostic codes were collected from psychiatric illness section of the ICD-10 coding manual. A list of commonly prescribed psychiatric medications was created based on the National Alliance on Mental Illness, which includes antidepressants, mood stabilizers, typical and atypical

antipsychotics, MAO inhibitors, SNRIs and SSRIs. Baseline characteristics were compared utilizing a student's t-test in Excel and Chi-Squared tests using STATA/SE version 15 (StataCorp LLC, College Station, Texas).

Data on referral patterns of patients referred to STC Social Work with a mental health need were also collected in retrospective chart review. This included data on referrals to specific community mental health agencies, referrals to STC Psychiatry Clinic, and general support by a licensed social worker in clinic.

Semi-structured Qualitative Interviews

Semi-structured qualitative interviews were conducted with participants between December 2017 and June 2018 in-person and by-phone. Participants were asked open-ended questions to identify barriers and facilitators to attending referral appointments. Interviews were conducted from a 7-question template (See Appendix) by two members of the research team (OK and RC) and patient responses were transcribed. To ensure that delivery was standardized, the first interview for each participant was observed by the other interviewer before conducting interviews separately. Interviewers asked about the patient's awareness of the referral, perceptions of the utility of the referral, and ability to connect with the outside mental health resource. Questions included "If you did not attend the visit, why not?" and "If you did attend, what motivated you to attend the appointment?" Interviews were designed to be less than 15-min and occurred during, before, or after the patient's clinical encounter if done face-to-face. If patients did not show to their Shade Tree appointment or departed before the interview could be conducted, follow-up phone interviews were held. When interviews were conducted by phone, interviewers confirmed that patients would be available for a 15-min interval before initiating the interview questions. Analysts used a deductive approach that began with developing a codebook adapted from Barriers to Access to Care Evaluation (BACE) scale (Clement et al. 2012). Each sentence of the interview was assessed to determine if a BACE theme was mentioned and if so, it was coded with the corresponding BACE scale item. Since no scale existed for facilitators, we utilized the methods outlined by Graneheim and Lundman to identify facilitator themes; each sentence was coded into meaning units on paper and grouped based similarities and differences between them. (Graneheim and Lundman 2004) For example, a patient might say "I started going to my counselor two years ago for help with my self-esteem and marital issues." The condensed meaning unit of this sentence might be "initiated counseling services due to symptoms." The condensed interpretation is "referral success due to recognition of mental health condition." The broader theme is "successful referral due to health concerns." Eight barrier themes emerged and one facilitator

Table 1 Demographic characteristics of shade tree patients with and without psychiatric diagnoses (n = 355)

	Patients with a psychiatric diagnosis	Patients without a psychiatric diagnosis	p-value
Number of patients	73	282	
Average age (years)	29.3	33.3	0.031*
Gender			
Female	37 (51%)	162 (57%)	> 0.05
Male	36 (49%)	120 (43%)	
Language			
English	47 (64%)	136 (48%)	0.014*
Spanish	26 (36%)	146 (52%)	
Race			
White	41 (56%)	119 (42%)	> 0.05
Black	13 (18%)	46 (16%)	
Unknown	9 (12%)	76 (27%)	
Medical comorbidities	9.8	5.9	< 0.001*
Total medications	8.4	5.3	< 0.001*
Semi-structured Qualitative Interviews	31.1	31.2	> 0.05

*Statistically significant at $p < 0.05$

theme emerged. Frequency of codes was tabulated in Microsoft Excel. A subset of interviews was separately coded and an interrater reliability of 90% was achieved. After establishing this inter-rater reliability, the remaining phone interviews groups were divided up among the research analysts. The authors discussed emerging results and reached consensus about the coding and findings.

The Vanderbilt University institutional review board approved this evaluation as a quality improvement study, waiving the requirement for informed consent of participants. This initiative was designed and implemented by the clinic's student leadership with faculty oversight.

Results

Cohort Characteristics

At the time of chart review, of 355 total patients at Shade Tree Clinic, 73 patients (21%) were identified to have a psychiatric diagnosis. The demographic characteristics of this population compared to the patients without a psychiatric diagnosis listed are displayed (Table 1). Patients with psychiatric diagnoses have significantly more total medical comorbidities (10 versus 6, $p < 0.001$). In addition, patients with a psychiatric illness are twice as likely to be English-speaking compared to Spanish-speaking ($p < 0.05$). All of the patients had a listed mood or anxiety disorder with or without another co-occurring psychiatric illness (psychotic disorder, substance use disorder, personality disorder). The

Table 2 Frequency of psychiatric diagnoses

Psychiatric diagnosis	Frequency (n = 73)
Depression	49
Anxiety	24
Substance use	14
Other (psychosis, personality, physiologic)	3

Table 3 Frequency of medications prescribed

Medication type	Frequency (n = 73)
Selective serotonin reuptake inhibitor (SSRIs)	38
Atypical antidepressant	27
Mood stabilizer	19
Tricyclic antidepressant	12
Antipsychotic	11
Serotonin and norepinephrine reuptake inhibitor (SNRIs)	9
Monoamine oxidase inhibitor (MAO-I)	0

co-occurring illness with highest frequency was substance use (n = 17). (Table 2).

The most popularly prescribed psychiatric medications for patients with psychiatric illnesses were SSRIs and atypical antipsychotics (Table 3). Patients with psychiatric illness

Table 4 Referral pattern of Shade Tree Clinic (n = 60)

Organization	Frequency (%)
Behavioral health safety net clinic (Centerstone)	14 (22%)
Other community mental health organization	14 (22%)
Shade Tree Clinic psychiatry night	11 (17%)
In-clinic social work visit only	25 (39%)

were prescribed significantly more total medications than patients without psychiatric illnesses (8 versus 6, $p < 0.001$).

Referral Pattern

Of the 60 patients who identified a mental health need in 2016 via the Social Work intake, 22% received a referral to a single outside safety net behavioral clinic, 22% received a referral to another community mental health, 17% patients received care at Shade Tree Clinic Psychiatry Night. The remaining 39% of patients received general support from the licensed social worker in clinic only without additional outside referral (Table 4).

Barriers and Facilitators to Successful Referral

Of the 60 patients that were contacted for this study, 15 patients were successfully interviewed to assess barriers and facilitators to successful completion of a mental health referral. The most commonly cited facilitator was concern for individual health ($n = 6$). No single barrier was identified to be significant. Challenges included transportation, comorbid medical illnesses, and scheduling difficulties. Of note, language, social stigma, and cost were not cited as barriers to care (Table 5).

Discussion

In this retrospective cohort study, we found the prevalence of mental health in a student run clinic was 1 in 5 patients. These patients were more likely to have medical comorbidities total medications, and to be English-speaking. Of the patients with referral information, the majority were referred to a single outside safety-net mental health provider. Commonly cited barriers to success included transportation and medical symptoms. The most commonly cited reason for successful referral was concern for individual's health. The results of this study shed light on the prevalence of mental health needs in a student-run free clinic (SRFC) patient

Table 5 Patient reported barriers and facilitators to mental health referral completion (n = 15)

	Frequency
Barriers	
Employment hours	2
Not wanting to talk about feelings	1
Thinking the problem will get better on its own	1
Transportation	3
Did not want referral	1
Prefers to get help from family/friends	1
Difficulty due to medical illness	2
Location	2
Forgetting to make the appointment	2
Facilitators	
Concern for personal health	6

population as well as strategies for addressing these issues and potential barriers to care.

Certain findings from this study are consistent with previous literature of traditional primary care settings while others are not. Prior research demonstrates higher disease burden among patients with psychiatric diagnoses, which is supported by this study (Scott et al. 2007). Interestingly, language was not cited as a barrier for follow-up for Spanish-speaking patients included in the surveyed population. This could be limited by underrepresentation of Spanish-speaking patients with mental illness diagnoses in the cohort due to non-response bias or validity of the screening tool in detecting mental illness in non-English populations. This is contrary to previous literature which has found language barriers and additional barriers to completing referral paperwork in another language to contribute to decreased perceived benefit from psychotherapeutic services among monolingual Spanish-speakers (Alegria et al. 2007). Other barriers found in this study, such as transportation, have been documented in previous literature to disproportionately affect patients with low socioeconomic status who are seeking mental health services. (Packness et al. 2019) We also identified new barriers which were not originally included on the BACE questionnaire (Clement et al. 2012), such as severity of non-mental-health related medical symptoms (i.e. knee pain) as a barrier to seeking treatment.

This is the first study, to our knowledge, to demonstrate the community mental health referral patterns of an SRFC. Some recommendations emerge from the assessment of this SRFC which could be helpful to other student-operated clinics. First, SRFCs should recognize the prevalence and characteristics of patients with mental health needs to design or scale interventions based on need. Next, we found that the majority of referrals to mental health providers are through a single safety-net provider. These results suggest

an opportunity to create improved referral protocols and data sharing with a single organization to reduce barriers to successful referral. Because no single barrier was identified among this small sample size as having a disproportionate effect on referral, we anticipate the effects of any individual intervention to address barriers to be low. For example, STC adjusted the resources required for a ride-sharing intervention to address transportation barriers after recognizing that this represents a small proportion of barriers as demonstrated by survey results. Similarly, we have considered extending STC Psychiatry Clinic Saturday hours but implemented this on a smaller scale after realizing only a small portion of patients would benefit. We believe that sharing these findings could guide other SRFCs in resource deployment. In our study, patients who successfully completed mental health referrals unanimously cite a concern for individual health as a motivator for appointment attendance. Motivational interviewing is one technique that has been shown to increase patient activation (Barnes and Ivezaj 2015; Linden et al. 2010). Because of the results of this study, we have continued to train social work volunteer staff in motivational interviewing techniques hoping to increase concern for individual health as a facilitator for referral success. Successful implementation of strategies like this could positively impact nearly half of referrals which are unsuccessful due to lack of perceived need according to the results a national study (Mojtabai et al. 2011). Methodical assessment of patient barriers has resulted in meaningful change at Shade Tree Clinic and we hope that providing these tools will allow other SRFCs to be able to replicate this study in other settings.

Limitations

Data collected through semi-structured interviews for this study was largely self-reported by a small sample size subject to nonresponse bias. Future studies should explore referral patterns across multiple SRFCs to improve overall study power. Unfortunately, a validated survey for facilitators (similar to the BACE) was not available and creating one from a small sample size does not adequately capture the diversity of responses. Furthermore, disease severity, which was not collected as a variable, may influence responses. For example, patients with severe psychiatric illness may be less likely to respond or may be more likely to report certain barriers. This study was implemented in a student-run free clinic whose patient population and operational structure may not be reflective of other clinics. Specifically, this clinic is associated with an academic medical center which provides psychiatric medical services at the clinic monthly. In addition, the clinic sees a high proportion of Spanish-speaking patients which may not be true of all SRFCs. Psychiatric

problems were abstracted from the electronic health record problem list, which may not be complete.

Conclusion

Psychiatric comorbidities are common in student-run free clinics. This study increases our understanding of burden of disease, referral patterns, and barriers to mental health access for student-run free clinics. Future studies on interventions to improve screening among Spanish-speaking populations and efficacy of student-led motivational interviewing would advance our understanding of caring for underserved populations.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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