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Implementing a College Mental Health Program – an Overview of the First Twelve Months

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Abstract

Objective: To evaluate the demographics and clinical utilization patterns among college students during the initial 12 months of a novel, multi-disciplinary, collaborative, college mental health program (CMHP).

Participants: Undergraduate and graduate students receiving treatment at the CMHP from Jan-Dec 2015.

Methods: De-identified data was obtained via electronic health records for all students receiving care through the CMHP.

Results: 1.2 FTE clinical providers treated 278 undergraduate and graduate students during the year (65.1% < age 26, 53.6% female, 49.6% Caucasian). There were 1822 CMHP outpatient visits, 318 other medical visits and 103 total emergency room (ER)/inpatient visits. Ten students were identified as high utilizers of ER/inpatient services, while charges to the CMHP totaled \$470,157 and total charges to the Health System were \$2,378,315.

Conclusions: Students with complex psychiatric/medical co-morbidities received cost effective, convenient and integrative treatment. Over time, we hope to intervene earlier and decrease ER/inpatient visits.

Keywords

mental health; community health; clinical medicine; psychiatry

In 2015, nearly 21 million students were enrolled in US colleges and universities with enrollments projected to continue climbing over the next 5 years (1). The diversity of this student population is also expanding, particularly in terms of age, ethnicity, academic readiness, socioeconomic status and mental health needs (2–3). In large national surveys of college students, 30–50% were found to have a psychiatric disorder (4–5) and mental health conditions ranked among the top 5 specific diagnostic categories seen in college health services (6).

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Ethical Considerations: Our institutional review board formally exempted this study based on the de-identified data.

Disclosures: We report no conflicts of interest.

A growing focus on early identification and treatment of mental illness in precollege youth (7–8) has allowed more students with mental health needs to matriculate to undergraduate and graduate schools. These students require continued care in a college setting but often fail to seek care because of perceived stigma and limited resources (9–10). Notably, collaborative college mental health programs (CMHPs) provide unique opportunities for interventions in transition age youth by utilizing more intensive psychiatric treatments that affect the life course and impact of mental illness (11). Given the increasing demand by undergraduate and graduate students for specialized psychiatric care, academic medical centers can and need to participate in the development of novel, evidence-based CMHPs that improve the academic success and quality of life for their students (12–13).

This paper expands on the current literature by describing the experience of designing and implementing a new CMHP, which is embedded within an academic department of psychiatry and augments the existing, more traditional, campus-based student health and counseling services at one west-coast public university (enrollment 33,000). This is one of the first reports of such a coordinated, cross-campus mental health program for undergraduate and graduate students. The CMHP is located across the street from the main campus and includes a multi-disciplinary treatment team consisting of a 0.7 full time equivalent (FTE) psychiatrist and a 0.5 FTE psychologist/ social worker. The primary aim of this descriptive study was to evaluate the clinical utilization patterns during the initial 12 months of launching the CMHP, to assess mental health needs among college students. To this end, de-identified data from the electronic health record (EHR) was obtained including: demographics of the student/patients, number of CMHP visits, total visits within the health system, diagnoses, and prescribed medications, along with the outcome measures of *number of students identified as high utilizers of hospital services* (need for readmission to an inpatient or emergency service after a previous admission to an inpatient or emergency service within 30 days), *charges to the CMHP*, and *total charges to the health system*. In addition, challenges encountered when designing and implementing this program and implications for future CMHPs are reviewed.

Methods

Six months before the program and data collection began, the CMHP was created as an outpatient clinic within the department of psychiatry. Monthly meetings that included student health and counseling staff and the department of psychiatry faculty were initiated to encourage the referral of students with ongoing psychiatric needs to the CMHP. In addition, a website was created so that students could self-refer to the program. Specific visit types were designated within the electronic health record (EHR) so that students within the program could be tracked longitudinally within the health system.

De-identified data was obtained via the EHR for all undergraduate and graduate students receiving care through the new CMHP from January through December of 2015 utilizing a clinical and translational research institute's bioinformatics program that can report a variety of available EHR data. Demographic information included age, gender, ethnicity and marital status. Visit information for each patient included: 1) total number of CMHP encounters; 2) total number of other health system outpatient encounters; and 3) total number of health

system emergency department visits and inpatient hospitalizations. Diagnostic information for each patient included all billed diagnoses for both CMHP and non-CMHP visits. Outcome measures were: 1) high utilizers as identified by total number of patients who were readmitted to an emergency department or inpatient unit in a 30-day period; 2) total charges by CMHP; and 3) total charges to the health system defined as any charge billed via the EHR.

This protocol was submitted to the human subjects institutional review board (IRB) and was deemed to not require an IRB number or approval. The multi-disciplinary team in the CMHP consisted of a 0.7 full time equivalent (FTE) psychiatrists and a 0.5 FTE psychologists/social workers, representing a total of 7 individual providers. The FTE for psychiatrists, psychologists and social workers in the CMHP was based on a 40-hour clinical workweek. Provider's schedules were reviewed in the EHR scheduling template, and the percentage time devoted to CMHP patients was determined. Visits per year were calculated based on a 48-week academic calendar. A 30-day readmission rate was calculated using the number of students readmitted to an inpatient unit or emergency department in 30 days (N=10), divided by the total number of students seen during the year in the emergency department/inpatient units (N=49).

Results

Demographics –

A total of 278 unique students were identified by EHRs as treated by our CMHP during this 1-year period, *as summarized in Table 1*. Just over 65% were under the age of 26 and 53.6% were female. The student population receiving services was ethnically diverse, with 50.3% of students representing ethnicities other than Caucasian, including 18% Asian and 9.7% Hispanic. *Visits* – In total, there were 1822 CMHP outpatient visits, 318 other medical visits and 103 total ED/inpatient visits (92 ED visits and 11 inpatient hospitalizations), *as shown in Figure 1*. The 1822 outpatient visits, averaging to 6.5 visits/student, were delivered using the combined available 1.2 FTE, averaging approximately 38 visits delivered per week, or 31 visits delivered per 1.0 FTE per week.

Of the 278 unique students, 85% had more than one psychiatric diagnosis or comorbid medical illness. While the most common *mental health diagnoses* included anxiety, depression and ADHD. Other diagnoses included sleep problems, substance use, bipolar disorder, and psychosis. Common *medical diagnoses* included injury/poisoning, musculoskeletal, digestive, genitourinary, and headache. The majority of students (68%) were prescribed more than one medication. Of the *medications prescribed* by all providers, antidepressants were the most common, with 161 students (57.9%) prescribed a serotonin-selective reuptake inhibitor, bupropion, serotonin and norepinephrine reuptake inhibitor, or other antidepressant, such as mirtazapine or trazodone. Psycho-stimulants were also regularly prescribed (35.6%), as were benzodiazepines (15.8%), gabapentin (15.8%), antipsychotics (12.2%), and the mood stabilizers - lithium, valproate and lamotrigine (10.4%). *There were 10 students identified as high utilizers*. These student/patients obtained more than one emergency department or inpatient hospitalization within a 30-day period. The *30-day readmission rate* was 10/49 or 20.4%. *Charges* to CMHP totaled \$470,157,

averaging \$1,691 per student, while total charges to the health system were \$2,378,315, averaging \$6,864 per student.

Comment

This new and innovative CMHP provided a high volume of clinical services to an ethnically diverse student population with significant mental health and medical needs. Most students received multiple mental health and medical diagnoses, consistent with other reports that comorbidity is common in both adults and transition age youth who receive mental health services (14–15). In keeping with other reports, this study found that college students were commonly diagnosed with anxiety, depression, and ADHD (16). The most frequent medication classes were antidepressants and psycho-stimulants. Most students received both initial and follow up prescriptions and often were prescribed more than one psychotropic medication, either by a CMHP or other health provider. Utilization based on visits per year and total charges suggests a significant demand for CMHP services.

Despite the acuity of visits and multiple co-morbidities, only 3.6% of students (10/278) were identified as high utilizers based on a 30-day readmission to the emergency department or an inpatient unit. The 20.4% CMHP 30-day readmission rate is in the range of the 9–22% rate described in other cohorts (17–18). This readmission rate will hopefully decrease as the collaborative aspect of the new CMHP unfolds. On-campus providers, including case managers, and CMHP providers are able to discuss and coordinate many aspects of treatment planning and disposition for most students seen within the program. This is done both at the monthly cross-campus meeting and as needed via phone consultations. A special effort is made to coordinate higher risk students who were seen in the emergency department or require hospitalization. Additionally, the CMHP appears to be relatively cost effective, with average annual visit charges per student of \$5,173 less through CMHP services than through the rest of the health system. This finding supports previous assertions touting the efficacy of early intervention in terms of time, cost and benefits to treatment (19–20).

Mood, anxiety, and substance use disorders are common among transition age youth, and many students who are not symptomatic upon entry into college will develop symptoms within several years of matriculation, particularly as stress increases. If 2–3% of the 33,000 students at this academic center suffer from more severe mental illness, this translates to 660 to 990 students who require more specialized care. Studies have shown that 66% of those suffering with depression do not actively seek or receive proper treatment, and untreated mood disorder is the number one risk for suicide. Early detection of vulnerability is thus an important clinical goal that can have a major impact on future quality of life by enabling effective risk management (3,6,21).

CMHPs can address these challenges and meet the growing demand for mental health services by: 1) expanding their services to provide timely access, with the goal of a 3-week or less wait-time for a new appointment; 2) utilizing EHRs to collaborate with other private and publically funded CMHPs in order to create a multi-site database that can track students, especially those at higher risk, to assess longitudinal outcome measures such as improvements in global functioning, graduation rates, and employment attainment after

graduation; 3) developing an early screening and risk assessment program for transition age youth in the college setting that will allow identification of students who are in need, and not currently accessing available mental health services, and enable treatment and intervention protocols to help high-risk students manage symptoms if and when they emerge; and 4) improving their outreach methods to enhance visibility of CMHPs and decrease stigma attached with seeking psychiatric assistance.

Expansion of CMHPs to meet these growing mental health service needs will require identifying and securing stable sources of funding. One possibility is to integrate funded clinical trials investigating specific areas of treatment, particularly those that promote early intervention. Additionally, optimizing mental health must involve faculty, staff, and students and incorporate all facets of campus life - academic, athletic, and social. This serves to increase acceptance of psychiatric problems, and improves the collaboration between all of the motivated and caring individuals and programs within each academic institution.

Limitations

Limitations of this study include the type of data that could be obtained from the bioinformatics program. For example, only billed diagnoses were available; hospital visits could not be categorized as psychiatric versus other; medications could not be distinguished based on provider type (i.e., primary care versus psychiatry); and a standard, 30-day re-hospitalization rate could not be extracted from the de-identified EHR data. There is also a lack of a comparison group, as this was the first year of the program and the first year the department of psychiatry utilized an EHR for outpatient services. As a point of reference, in 2014, prior to implementation of the program, approximately 55 students received outpatient services through the department of psychiatry, significantly fewer than the 278 students treated in the first year of the CMHP.

Implementation of this novel, state-funded CMHP presented some unique challenges. Communication between CMHP and student health and counseling services on-campus was sometimes problematic due to discrete, non-interfacing EHR systems. Also, in academic medical centers an inherent conflict of interest arises when providing services to students in programs that overlap with clinicians' clinical or academic duties. In order to prevent this, clinicians monitored upcoming appointments and proactively transferred students in this situation to other providers.

Another challenge was providing timely access to specialized psychiatric services based on the demand for services. This CMHP hoped to provide an intake within three weeks, but at times could only provide an initial evaluation within eight weeks. When feasible, students with moderate to severe eating disorders and early psychosis were transferred to other departmental programs already in place. The program also capitalized on staffing, which utilized multiple providers, some of whom balance their time between clinical, teaching and academic endeavors, or provide general psychiatry services. This allowed the new CMHP to deliver 31 visits per week for 1.0 FTE. Still, there is evidence that the 278 students who received services in the first year represent only one-half to one-third of the total need. Expansion of the capacity of this program is thus required.

Conclusions

Despite these limitations and challenges, implementation of a CMHP embedded within an academic department of psychiatry was financially viable as part of the health system and provided a high volume of specialized psychiatric services to an ethnically diverse student population with significant mental health and other medical needs utilizing rather modest clinician FTE. Promising outcome measures included a relatively low number of high utilizers (3.6%) as identified by the need for a 30-day readmission, and improved cost-effectiveness relative to other health system charges. Over time, we hope to decrease students' use of ER/inpatient services by expanding access to care such that a larger percentage of students with either significant mental illness or strong indicators of potential mental illness receive timely, integrative and compassionate treatments.

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Figure 1:
Average number of visits per year per student by provider type

Table 1.

Demographics and service utilization report for 278 college students treated at CMHP during 2015.

Variable	N	Percentage (%)	Variable	N	Percentage (%)
<i>Gender</i>			<i>Psychiatric diagnosis</i>		
Female	149	53.6	Anxiety	179	64.4
Male	129	46.4	Depression	170	61.2
<i>Age in years</i>			ADHD	117	42.1
18–22	132	47.5	Sleep problems	50	18.0
23–25	49	17.6	Substance use	47	16.9
26–30	56	20.1	Bipolar disorder	42	15.1
31 or older	41	14.7	Psychosis	10	3.6
<i>Race/Ethnicity</i>			Other	70	25.2
White, non-Hispanic	138	49.6	<i>Medication Classes</i>		
Black	7	2.5	Antidepressants	161	57.9
Asian	50	18.0	Psycho-stimulants	99	35.6
Hispanic/Latino	27	9.7	Benzodiazepines	44	15.8
Other/Unknown	56	20.1	Gabapentin	44	15.8
<i>Medical diagnosis</i>			Antipsychotic	34	12.2
Injury/poisoning	45	16.2	Mood stabilizer	29	10.4
Musculoskeletal	33	11.9	Other psychotropic	30	10.8
Gastrointestinal	32	11.5	<i>Outcome Data</i>		
Genitourinary	32	11.5	30-day re-admission ¹	10	20.4
Headache	24	8.6	Total CMHP charge ²		19.8
Other	84	30.2			

Percentages for all demographic and clinical variables are based on a total of 278 unique students.

¹ - The 30-day readmission rate is based on 10 out of 49 students who required readmission to the emergency department or inpatient units within 30 days of a previous emergency department or inpatient unit admission.

² - The percentage of the total CMHP charge (\$470,157) is in relation to the total hospital charge for one year (\$2,378,315).