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Anxiety and Depression Prevalence in Free Clinic Patients

Jack Kovarik[1]; Macie Bokelman[1]; Margaret Smith, MD[2]

[1]University of Kansas School of Medicine, University of Kansas Medical Center, Kansas City, Kansas, USA
[2]Department of Family and Community Health, University of Kansas Medical Center, Kansas City, Kansas, USA

Corresponding Author: Jack Kovarik; email: kovarikjack@gmail.com

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Abstract

Background: Disparities in mental health services are often observed in under-resourced low-income communities, which are at an increased risk for compromised mental health. By surveying patients at JayDoc Free Clinic, a student-run free clinic (SRFC) in Kansas City, Kansas, this study sought to assess the prevalence of depression and anxiety and compare screening outcomes among various demographic groups seeking safety-net care.
Methods: From May through November 2022, patients aged 12 and older were offered a Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), and demographic survey. Demographic variables included household income, gender, insurance status, and race and ethnicity. GAD-7 and PHQ-9 questionnaire scores were categorized into minimal, mild, moderate, or severe categories. Relationships between demographic variables and scores on screening questionnaires were analyzed using multivariable analyses, with linear regression and analysis of variance one-way tests for significance (p-value <0.05).
Results: Of 232 participants who consented to the study, 222 completed the GAD-7 and 228 completed the PHQ-9. In comparison to 2019 United States national data, the percentage of respondents experiencing anxiety and depression was greater across all severity classifications. Approximately 18.1% reported symptoms of moderate to severe anxiety and 21.5% reported symptoms of moderate to severe depression, compared to national distributions of 6.1% and 7%, respectively. Of 232 participants, 54 completed the demographic survey. There was no correlation between PHQ-9 scores or GAD-7 scores and gender, household income, insurance status.
Conclusion: While no association was identified between screening outcomes and demographic variables, the findings that the prevalence of anxiety and depression at JayDoc SRFC is greater than national rates reaffirm the need for accessible mental health services for patients receiving care at SRFCs. This study provides insight into the status of mental health in an SRFC patient population and discusses mental health screening implementation at SRFCs.

Introduction

Depression, anxiety, or somatic disorders will affect one in three people within their lifetime.[1] Depression is associated with a lower quality of life and functioning for patients.[2] Patients with unrecognized depression tend to seek out medical care more frequently, thus consuming more healthcare resources.[3] Depression affects between 5-10% of individuals who visit a primary care provider (PCP), but is only recognized in 50% of cases.[4] Comorbidity is common with 45.7% of patients with lifetime major depressive disorder having a history of one or more anxiety disorders.[5,6] Anxiety disorders are a prevalent health concern in primary care settings, and significantly decrease quality of life and productivity in affected individuals.[7]

Low-income communities are particularly at-risk for compromised mental health as poverty is directly correlated with poor mental health outcomes.[1,8] These communities are affected by limited resources, poor housing, and high crime rates, which can strain individual mental health.[1,8]

Therefore, access to mental health resources in these communities is vital to improving overall health outcomes.[1]

Student-run free clinics (SRFCs) play a pivotal role in underserved communities as safety net providers.[9] The majority of patients who visit SRFCs are uninsured.[9] Uninsured patients have consistently lower treatment rates and access to mental health resources compared to Medicaid and privately insured groups.[10] Therefore, it is difficult for SRFC patients with psychiatric conditions to receive necessary treatment.[11,12]

The reported prevalence of depression in SRFC populations across the United States (US) ranges from 10.5-27.9%.[13,14,15] There is limited data reporting the prevalence of anxiety in SRFC populations. As underserved communities have limited access to PCPs and a higher risk for depression and anxiety which can often go undiagnosed in primary care settings, this study aimed to assess the hypothesis that levels of depression and anxiety in the JayDoc Free Health Clinic population are potentially greater than national rates of depression and anxiety. The study objectives include: (1) to assess the prevalence of depression and anxiety in the JayDoc patient population and compare these results to national data; (2) to evaluate if there is an existing relationship between anxiety, depression, and demographic variables (gender, race and ethnicity, income, insurance status); and (3) to demonstrate need for accessible and affordable mental health services for patients visiting SRFCs. This study provides additional insight into the status of mental health in SRFC patient populations by reporting the co-existence of depression and anxiety and distribution of severity of symptoms in SRFC patients. We also examine if the data suggests a regional difference in the prevalence of anxiety and depression in SRFC patient populations and discuss future goals to establish management protocols for patients who screen positive for clinically significant symptoms of anxiety and depression. Therefore, this study provides valuable discussion and insight into mental health care for SRFC patient populations.

Methods

Study Site and Participants

This study occurred at a SRFC in Kansas City,

Table 1. Characteristics of study population by mean Generalized Anxiety Disorder-7 Score

Characteristics	Participants (n=54)*	Mean Score ± SD	P-Value
Gender, n (%)			
Female	20 (37.0)	6.3±6.7	0.165
Male	31 (57.4)	5.0±6.0	
Other	2 (3.7)	15.0±5.7	
Prefer not to answer	1 (1.9)	2.0±0.0	
Income status			
<$25,000	23 (46.9)	6.5±6.9	0.297
$25,000-50,000	16 (32.7)	4.8±5.5	
$50,000-100,000	3 (6.1)	2.0±2.0	
$100,000-200,000	1 (2.0)	17.0±0.0	
Prefer not to answer	6 (12.2)	7.7±8.3	
Insurance status†			
Uninsured	34 (72.3)	5.9±6.6	0.657
Private Insurance	2 (4.3)	1.4±1.0	
Medicaid	5 (10.6)	7.2±2.9	
ACA Marketplace	1 (2.1)	0.0±0.0	
Other	5 (10.6)	7.2±7.9	

SD: standard deviation; ACA: affordable care act.
**At week 26, 54 of 232 (23.3%) of participants completed the assessment; †n=47 as 7 participants declined to answer.*

Table 2. Characteristics of study population by mean Patient Health Questionnaire-9 Score

Characteristics	Participants (n=54)*	Mean Score ± SD	P-Value
Gender, n (%)			
Female	20 (37.0)	6.4±7.5	
Male	31 (57.4)	7.4±7.0	0.538
Other	2 (3.7)	11.3±4.7	
Income status			
<$25,000	23 (46.9)	7.4±6.9	
$25,000-50,000	16 (32.7)	6.3±5.9	
$50,000-100,000	3 (6.1)	3.3±3.1	0.307
$100,000-200,000	1 (2.0)	20.0±0.0	
Unknown	6 (12.2)	7.2±9.6	
Insurance status†			
Uninsured	34 (72.3)	7.0±7.5	
Private Insurance	2 (4.3)	3.0±4.2	
Medicaid	5 (10.6)	7.6±4.5	0.632
ACA Marketplace	1 (2.1)	2.0±0.0	
Other	5 (10.6)	7.8±8.2	

SD: standard deviation; ACA: affordable care act.
**At week 26, 54 of 232 (23.3%) of participants completed the assessment; †n=47 as 7 participants declined to answer.*

Kansas that provides walk-in primary care and protocol was approved by the institutional review board at University of Kansas Medical Center as an exempt project.

The study site sees approximately 1,000 patients annually. Our sample included patients aged 12 and older, literate in the English or Spanish language, who visited the clinic from May to November 2022.

Data Source

All consented participants received a Patient Health Questionnaire–9 (PHQ-9) and General Anxiety Disorder–7 (GAD-7) questionnaire upon entering the examination room and completed the surveys voluntarily. Surveys also collected demographic information, including self-identified gender, race and ethnicity, income, and insurance status (see online appendix).

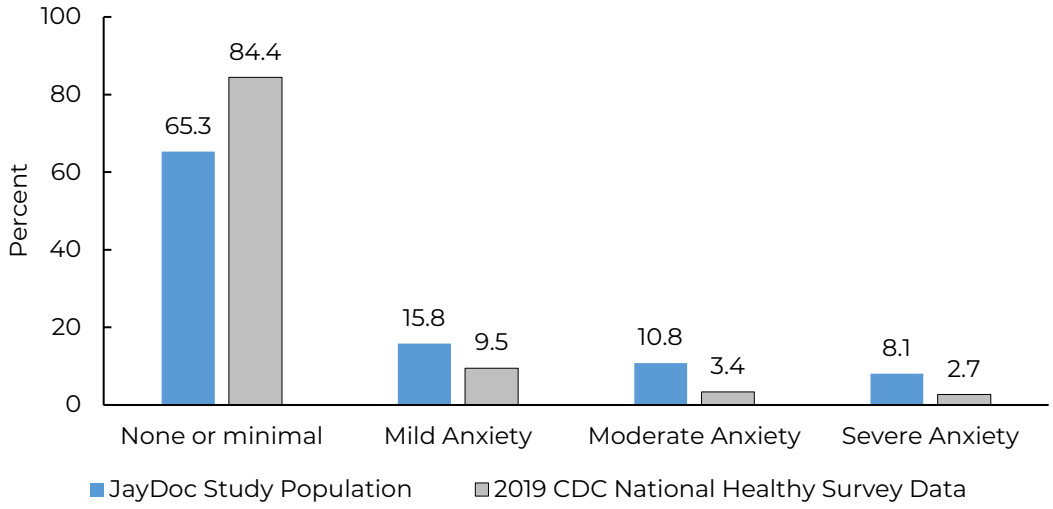
Variables

Our primary outcome measures were PHQ-9 and GAD-7 scores of the JayDoc patient population. The PHQ-9 is frequently used in primary care settings to diagnose common mental health conditions.[1,16] The PHQ-9 depression screening instrument asks participants about depression symptoms in the past 2 weeks.[16] Response categories of "not at all," "several days," "more than half the days," and "nearly every day" are scored 0 to 3. Summary scores range from 0 to 27. Moderate depression is defined as a score of 10 or higher, a standard used throughout primary care settings.[16] PHQ-9 is a reliable, valid measure of depression severity and is used to make criteria-based diagnoses of depressive disorders.[16]

The GAD-7 questionnaire maintains high specificity and sensitivity in diagnosing common anxiety disorders.[7] GAD-7 asks patients about anxiety symptoms in the past 2 weeks.[7] Response categories of "not at all," "several days," "more than half the days," and "nearly every day" are scored 0 to 3. Summary scores range from 0-21. Moderate anxiety is defined as a score of 10 or higher, a standard used throughout primary care settings.[7]

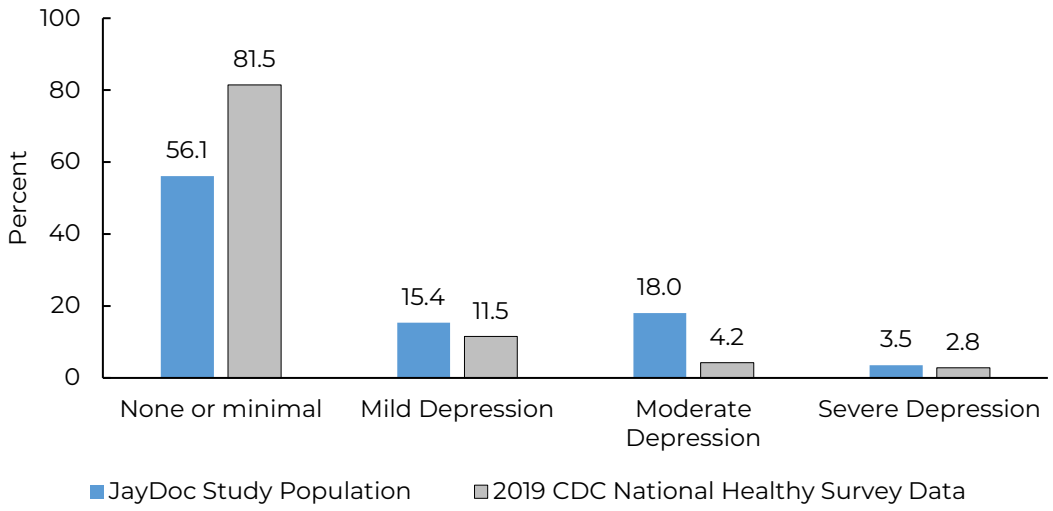
We summed affirmative responses of PHQ-9 and GAD-7 questions to determine the severity of depression and anxiety for each respondent, respectively. For the PHQ-9, respondents with questionnaire scores of 0-4 were

Figure 1. Percent distribution of Generalized Anxiety Disorder-7 symptom classification



CDC: Centers for Disease Control and Prevention.

Figure 2. Percent distribution of Patient Health Questionnaire-9 symptom classification



CDC: Centers for Disease Control and Prevention.

categorized as having "none or minimal" depression symptoms, while scores of 5-9, 10-14, 15-19, or 20-27 were categorized as having "mild," "moderate,", "moderately severe", or "severe" symptoms. For the GAD-7, respondents with questionnaire scores of 0-4 were categorized as having "none or minimal" anxiety symptoms, while scores of 5-9, 10-14, 15-21 were categorized as having "mild," "moderate," or "severe" symptoms.

The study data was compared to a National Center for Health Statistics (NCHS) report on data collected in the 2019 National Health Interview Survey (NHIS).[17,18] The NHIS continuously collects annual US population health data using geographically-clustered sampling techniques and in-person interviewing.[17,18] Estimates from this data, when accounting for NHIS survey design, are representative of the US population.[17,18] GAD-7 and PHQ-8 questionnaires were administered in the 2019 NHIS.[17,18] The subsequent NCHS report

Table 3. Characteristics of JayDoc patient population

Characteristics	Patients (n=440)
Gender, n(%)*	
Female	182 (41.9)
Male	247 (56.9)
Other	1 (0.2)
Prefer not to answer	4 (0.9)
Income status†	
<$18,310	31 (13.0)
$17,420-36,620	111 (46.4)
>$36,620	25 (10.5)
Unknown	67 (28.0)
Insurance status‡	
Uninsured	357 (87.5)
Insured	51 (12.5)
Ethnicity/Race	
White, not Latino	96 (21.8)
Asian/Pacific Islander	13 (3.0)
Black, not Latino	73 (16.6)
Latino	229 (52.0)
Native American	4 (0.9)
Multiethnic/Other/Unknown	25 (5.7)

Source: JayDoc Free Clinic, RedCap Demographic Survey, 1/1-6/29/2022

*n=434, as 6 participants declined to answer; †n=239, as data collection for this metric was started in 2022; ‡n=408, as 32 participants declined to answer.

study, thus allowing us to compare the prevalence of anxiety and depression in the national population to the JayDoc patient population.[17]

Additional outcomes of interest included any differences in screening outcomes between distinct groups (gender, race and ethnicity, income, insurance status), as we wanted to understand whether there was an association between different social variables and primary outcome measures.

Analytical Approach

We assessed whether a relationship existed between each independent demographic variable (gender, income, insurance status) and scores on PHQ-9 and GAD-7 questionnaires using multivariable analysis, with linear regression and analysis of variance tests for significance. We were unable to run the analysis using race and ethnicity as we did not separate these two variables on our questionnaire. We reported the standard deviation (SD) and p-value using PHQ-9 and GAD-7 as reference groups. P<0.05 was interpreted as significant. All analyses were completed in SPSS Statistics (Version 29, IBM, Armonk, NY).

Results

During the data collection period, 232 patients agreed to participate in the study. Of 232 participants, 222 completed the GAD-7 questionnaire and 228 completed the PHQ-9 questionnaire.

Within the study population, 77 (34.7%) reported symptoms of anxiety and 100 (43.9%) reported symptoms of depression during their visit. Of participants who completed both questionnaires, 69 (31.4%) reported symptoms of coexisting depression and anxiety. Of participants that completed the PHQ-9, 65 (28.5%) reported symptoms of moderate to severe depression, compared to a national distribution of 7%.[17] Of these 65 patients, 54 (24.3%) reported symptoms of anxiety and 37 (16.8%) reported symptoms of coexisting moderate to severe anxiety. Of the participants that completed the GAD-7, 42 (18.9%) reported symptoms of moderate to severe anxiety, compared to a national distribution of 6.1%.[17] All 42 of these participants reported symptoms of depression and 37 (16.8%) reported coexisting moderate to severe depression.

Of 232 study participants, 54 completed the demographic survey. Tables 1 and 2 show 31 (57.4%) were male and 20 (37.0%) were female. Furthermore, 34 (72.3%) reported themselves as uninsured, while 39 (90.7%) reported an income status of <$50,000 per year. We observed no statistically significant differences in GAD-7 or PHQ-9 scores and demographic variables surveyed, including gender, household income, and insurance status (all p-values >0.1).

Discussion

Our findings identified 70 (30.2%) participants screening positive for at least moderate depression or moderate anxiety. Many patients in this group present with clinically significant symptoms qualifying for intervention and treatment. In addition, many participants presented with

coexisting mental health conditions.

In comparing the prevalence of anxiety and depression symptoms in JayDoc patients to general US population data (Figures 1 and 2), the percentage distribution of JayDoc respondents experiencing anxiety and depression was greater across all symptom classifications. Previous studies performed at SRFCs have also reported the prevalence of depression in their patient populations to be at higher rates than the national average of 7%, including 27.9% (60/215) at two University of California San Diego SRFC locations, 10.5% (49/465) at East Harlem Health Outreach Partnership, and 26.3% (92/390) at Haven Free Clinic.[13,14,15,17] Comparing reported depression prevalence data across SRFCs could potentially be limited by factors such as use of different screening tools and clinical criteria to evaluate and diagnose depression. In addition, these studies do not report on distribution of symptom severity in their patient populations. Nonetheless, this data provides evidence that SRFC patient populations generally have greater rates of depression than the general population. Moreover, the data suggests that there are no clear regional differences in the prevalence of depression in SRFC populations across the US.

In regard to the demographic survey, the study found no significant correlation between the prevalence of anxiety or depression and demographic variables studied. However, the small sample size for the demographic survey potentially undermines the study power, thus challenging the finding of no existing association between demographic variables and anxiety and depression prevalence. Additionally, as our survey instrument failed to separate race and ethnicity of participants, little can be said about the relationship between demographics and mental health status. However, the high percentage of participants reporting mental health symptoms overall underscores the need to establish routine mental health screening measures and increase access to mental health resources for all demographic groups within this patient population.

Implementation of PHQ-9 and GAD-7 questionnaires to JayDoc patients required minor adjustments to clinic operations, including an informational session for volunteers regarding the study purpose and survey distribution. We elected to distribute paper surveys as we anticipated patients would complete the surveys with their intake paperwork. A potential alternative to distributing paper questionnaires is to verbally administer questionnaires to patients and record responses in the electronic health record. A challenge we faced was ensuring each patient completed their entire survey. This challenge was addressed by educating patients on the survey purpose, confirming each patient's ability to read and comprehend the survey, providing necessary materials and time, and following up at visit conclusion. Overall, we were able to distribute PHQ-9 and GAD-7 questionnaires to participants with minimal disruption to clinic operations.

Limitations

The limitations of this study are related to demographic survey sample size and content, clinic organizational structure at JayDoc, and potential survey fatigue.

One potential limitation was the small sample size obtained for the demographic survey. We did not decide to distribute a demographic survey until later in the study. Of study participants completing mental health screenings, 23.3% (54 of 232) completed the demographic survey. This is a small sample size compared to approximately 1,000 patient encounters yearly at JayDoc. However, in comparing the annual JayDoc patient population to the sample population, we can extrapolate that sample population characteristics showed similarities to the JayDoc patient population. As seen in Table 3, the overall JayDoc patient population receiving care in 2021 was male (59.9%), uninsured (87.5%), and reported an income status of <$36,620 per year (59.4%), as compared to the study sample population that was male (57.4%), uninsured (72.3%), and reported an income status of <$50,000 per year (79.6%). Nevertheless, a larger demographic survey sample size would improve the power of the study and provide more insight into existing relationships between mental health and demographic factors of the patient population.

In addition, our survey team did not separate race and ethnicity within the survey, which can further confound demographic data as race and ethnicity are different social constructs.[19] We are not able to make correlations with mental health

screening data and race and ethnicity of participants.

Another limitation is related to organizational structure at JayDoc. All student directors participated in group training on how to distribute and collect the surveys. However, with different student directors each clinic night, there was a possibility for inconsistency in distributing and collecting surveys as well as potential for variable influence on patient participation. Additionally, patients were asked to complete the questionnaires along with their patient intake paperwork, which could have potentially elicited survey fatigue.[20,21]

Future Directions

The key areas of interest for future study include expanding the sample size for the demographic survey, screening patients for suicidal and homicidal ideations, and establishing mental healthcare treatment plans and services at JayDoc.

We would like to expand the sample size for demographic variables to determine if there are associations between mental health screening scores and demographic variables in our clinic population. A greater sample size would provide opportunities to reevaluate whether specific groups are at higher risk for mental health conditions and would benefit from intervention. Additionally, expanding surveyed demographic variables to review factors such as household size, age, and employment status would yield additional data on factors contributing to the mental health status of SRFC patients.

In addition, we would like to screen patients for suicidal and homicidal ideations at JayDoc. As patients dying by suicide visit PCPs more than twice as often as mental health clinicians, primary care settings can serve an important role in alleviating suicide risk.[21] Thus, establishing a response plan for patients at-risk of suicide presents opportunities for intervention such as treatment, crisis planning, referral to emergency services, removal of means of self-harm, and inclusion of family and significant others.[22] Screening for suicidal and homicidal ideations would also yield data regarding rates of suicidal and homicidal ideations in SRFC patient populations, which is not well-reported in the literature.

Finally, we would like to establish a protocol for treating mental health conditions at JayDoc. This protocol would serve as a guide for students and providers in formulating a treatment plan and follow-up process for patients who screen positive for clinically significant depression or anxiety. Mental health management protocols within primary care settings should outline appropriate interventions such as treatment planning with options for pharmacotherapy and psychotherapy, plan for follow-up, and referral for full diagnostic evaluation.[23] JayDoc has explored partnering with University of Kansas Department of Psychology to establish a monthly psychology service, as well as Wyandot County Behavioral Health Center to streamline mental health referrals. Establishing a system to follow-up with patients undergoing a treatment plan allows SRFCs to monitor treatment plans for efficacy and adherence, and screen for recurrence of mental health conditions.[23]

Conclusion

The findings that the prevalence of anxiety and depression at JayDoc SRFC is greater than national rates reaffirm the need for accessible and affordable mental health services for patients receiving care at SRFCs. This study provides insight into the status of mental health in an SRFC patient population and yields important discussions on the implementation of mental health screenings at SRFCs in order to provide more comprehensive patient-centered care.

Disclosures

The authors have no conflicts of interest to disclose.

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