Implementation of a Mental Health Screening Tool at an Adult Homeless Shelter Student-Run Free Clinic in Arizona

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Abstract

Background: Mental health conditions are prevalent in people experiencing homelessness. This population may seek care in student-run free clinics (SRFCs), but screening for mental health conditions may not be consistent in this setting. The primary objective of our study was to implement a screening tool and determine the gap in identifying mental health conditions between History and Physical (H&P) examinations and the new screening tool. Secondary objectives were to assess its impact on patient volume and workflow.
Methods: Adult patients at a homeless shelter-based SRFC completed a mental health screening survey, separate from acute-care visits, aimed at identifying "high-risk" mental health conditions using validated questionnaires for identifying domestic violence, alcohol use, depression, anxiety, and mood disorders. Chart review was conducted to identify concordance between patients who screened positive for a high-risk condition using the survey and those with a high-risk condition documented in the acute-care H&P. Visit volume was tabulated and compared between the pre- and post-intervention periods using a t-test. A survey for volunteers was used to gather experiential feedback.
Results: Of 354 patients treated at Central Arizona Shelter Services, 123 (34.7%) were evaluated by the research team. Sixty (48.8%) of screened patients were identified as high-risk for at least one mental health condition through the screening tool, and 26 (43.3%) charts were reviewed. Of the patients that were screened as high-risk and reviewed, 15 (57.7%) were not documented as high-risk in the acute-care visit H&P. The clinic volume averaged 11 patients, regardless of whether screening occurred during clinic (p = 0.95). Of clinic volunteers, 191 (97.4%) reported no noticeable impact on clinic operations.
Conclusions: The screening survey identified more cases of mental health conditions than the previous standard medical interview. There were no adverse effects on the clinic workflow.

Background

An estimated 550,000 people in the United States were identified as experiencing homelessness in a 2016 point-in-time count.[1,2] Persons experiencing homelessness have higher rates of emergency department use and medical and psychiatric hospitalization compared with the general population.[3] While the prevalence of mental illness among those experiencing homelessness is difficult to quantify, it is estimated to be approximately 10 to 20 times higher than the general population.[4,5] Primary care providers play a crucial role in the identification and initial management of mental illness. However, individuals experiencing homelessness often have inconsistent sources of primary care, leading to underdiagnosis. Without a functional system for obtaining primary care for this population, the ability to identify and treat mental health conditions is insufficient.[6] Inadequate access and utilization of psychiatric services coupled with the transient nature of the population create substantial disadvantages for this population, which bidirection-

ally increases risk for continued homelessness.[7,8] Research shows that among women and families, the prevalence of intergenerational poverty, sexual and physical assault, and domestic violence are key contributors to homelessness.[2]

Health Outreach through Medicine and Education (HOME) is a student-run organization that offers free clinics and health education presentations to patients at various sites across the Phoenix metropolitan area. The student-run free clinic (SRFC) selected for this research project is operated by HOME at Central Arizona Shelter Services (CASS), which is the largest emergency homeless shelter in Arizona. The clinic's services are provided by an interdisciplinary team of graduate students attending Midwestern University for Osteopathic Medicine, Podiatry, Dentistry, Pharmacy, Psychology, Physician Assistant Studies, Occupational Therapy, and Biomedical Sciences.

Studies have explored the importance of integrating a mental health screening arm into primary care outreach. Batra et al. investigated project initiation of a student-run clinic that provided persons experiencing homelessness with primary care services, which included a psychiatric screening.[7] Clinic volunteers provide acute care for presenting medical issues of the SRFC patients but may not address important psychological concerns.

Objectives

Our study seeks to address how the implementation of psychiatric screening in a well-established clinic can improve the identification of mental health disorders without hindering clinic operations. Our study had three objectives: (1) to implement and evaluate a screening tool targeted at identifying mental health conditions during the acute-care visit; (2) to assess the effect of the tool's implementation on the number of patients seen during clinic; and (3) to obtain subjective feedback from clinic volunteers on workflow activity during implementation.

Methods

Study Participants

Only adult (18 years of age or older), English-speaking patients who received treatment at CASS clinic and consented to participate were in-cluded in the study. Due to lack of professional interpretation services, non-English speaking patients were excluded, along with patients that were seen for a repeat visit and already screened.

Study Design

The study period was March 2017 to July 2018. During these 16 months, a typical clinic night was 3 to 4 hours once per week. Mental health screenings were conducted using a packet containing a face sheet with patient demographics, high-risk criteria based on validated cutoffs of questionnaire scores, and five standardized questionnaires: Domestic Violence Survey,[9] Alcohol Use Disorders Identification Test,[10] Patient Health Questionnaire 9,[11] General Anxiety Disorder 7,[12] and Mood Disorders Questionnaire.[13]

Five pre-screening questions, chosen based on their sensitivity for identifying mental health conditions, were provided on a face sheet to select appropriate surveys to proceed with (Online Appendix). When patients answered "yes" to a question on this face sheet, they were directed to the corresponding survey. For example, one of the five questions asked about domestic violence, and if the response was "yes", the patient would proceed to the Domestic Violence Survey to gauge whether they were high-risk or not.

Upon completion of the questionnaire packet (face sheet and all applicable surveys), screeners evaluated if the patient is high-risk for any of the completed surveys. With any high-risk identification, students presented the information to a preceptor and notified the patient of available resources. Available resources included pamphlets and contact information for various public and private mental health, substance abuse, and domestic violence organizations in the area.

To explore the subjective experience of clinic volunteers, at the end of each clinic, risk-screening coordinators randomly selected clinic volunteers to complete the student feedback form. The survey consisted of a question to which the students would select a single answer choice: "In your opinion, did the screening process interfere with medical care provided to the patient?" The answer choices were the following: "Yes, it interfered and it produced a negative outcome/experience"; "Yes, it interfered but did not produce a negative outcome"; "No, the screening process

did not interfere"; or "I didn't notice if screening interfered with clinic." A "negative outcome" was left to the interpretation of the respondent based on his or her experience of workflow activity in the presence of research screening. The subjective interpretation was expected to develop a generalized perception of clinic operations with the screening arm to gauge the feasibility of adding a screening tool to acute-care visits. The sample of students asked to participate in the study was dependent on the number of students at the clinic and those available at the end of clinic to complete the survey. Students who had completed the survey previously were excluded from completing the form. To mitigate the effect of sponsor bias, the research team did not discuss any details of the project with student volunteers and provided study information only after patient examinations and at the end of clinic. All coordinators, trainers, screeners, and preceptors were selected based on their experience with mental health. This included backgrounds as suicide crisis line workers, behavioral health technicians, behavioral health volunteers, psychology majors, and emergency medicine technicians.

The Institutional Review Board of Midwestern University approved the study.

Mental Health Screening Tools

Below are the individual surveys that comprise the questionnaire packet used to screen each patient participating in the research.

Domestic Violence

The Domestic Violence (DV) survey is used to screen for physical, emotional, verbal, psychological, sexual, and financial abuse through a series of yes/no questions.[9] Varied forms of this survey exist in the literature, and the reports of reliability and validity were not uniform. Consequently, the studied survey was selected at the discretion of the principal investigator and leading research coordinators for its appropriateness and non-invasiveness toward the population and setting of use. The threshold for high-risk identification was any abuse occurring in the past 2 weeks.[9]

Alcohol Use

The Alcohol Use Disorders Identification Test (AUDIT) is a set of 10 questions about alcohol hab-

its and the number of times in the last year that behavior has occurred. The threshold for high-risk identification was a total score of 8 or greater. The sensitivity is 83% and specificity is 90%.[10]

Depression

The Patient Health Questionnaire 9 (PHQ-9) is a series of 9 statements that is one of the most widely used depression screening tools. Patients answer how often over the last two weeks a given statement has applied to them. The threshold for high-risk identification was a total score of 15 or greater. The sensitivity and specificity are 88%.[11]

General Anxiety Disorder

The General Anxiety Disorder 7 (GAD-7) is a series of 7 statements. Patients answer how often over the last two weeks that statement has applied to them. The threshold for high-risk identification was a total score of 10 or greater. The sensitivity is 83% and specificity is 84%.[12]

Mood Disorder

Finally, the last questionnaire is the Mood Disorders Questionnaire (MDQ). MDQ is a series of 13 statements where patients answer whether or not there has ever been a time when a given statement applies to them. The patient then evaluates if any of these episodes have co-occurred and how much of a problem these episodes caused. The threshold for high-risk identification was drawn from validated criteria which includes answering affirmatively to questions on the MDQ related to presence of symptoms, timing of symptoms, and impact on activities. The sensitivity is 58% and specificity is 76%.[13]

Mental Health Resources

Patients who scored high-risk for a particular mental health condition consulted with the clinic preceptor and were provided with relevant resources that included crisis hotlines and locations to seek treatment. Resources, however, were also extended to lower-risk patients at the discretion of the study clinic preceptor and screening group. This included patients that could benefit from the resources as preventative measures. Resources were provided on compact cards containing contact information including but not limited to the following: Alcoholic Anonymous

Phoenix; National Substance Use Disorder Issues Referral and Treatment Hotline; Crisis Response Network Crisis Line; Community Bridges Arizona; Shelter Line/Maricopa County; Arizona Coalition to End Sexual and Domestic Violence; National 24-hour Domestic Violence Hotline.

Statistical Analysis

Patients not identified as high-risk by screening were excluded from chart review for high-risk identification documented in H&Ps.

The proportions of patients identified as high-risk for domestic violence, depression, alcohol use, anxiety, and mood disorders were stratified by sex and age.

Statistical differences between groups of interest were assessed by a Chi-square test or Fisher's exact test for categorical variables and two-sample independent t-test for continuous variables. When comparing subgroups of mental health condition, p-values were adjusted with false discovery rate as appropriate. Statistical significance was assessed at the 0.05 level. Data were analyzed using Microsoft Excel (Version 16.46) and R (Version 4.0.3, R Foundation for Statistical Computing, Vienna, Austria).

Results

During the 16-month period in which researchers were present, a total of 354 patients were treated by the CASS clinic. Of the 354 patients treated, 123 (34.7%) participated in the study. Of those who participated, 77 (62.6%) were male, and 46 (37.4%) were female. Ages ranged from 18 to 72 years with a mean age of 47.3 ± 12.6 years. Sixty patients (48.8%) were identified as high-risk on at least one of the mental health questionnaires.

For the primary objective, researchers investigated if clinic volunteers identified high-risk patients effectively. Of the 60 participants who screened as high-risk, only 26 of their charts were accessible for review. Findings showed 15 (57.7%) were not identified by the clinic volunteers as indicated by a lack of documentation of high-risk mental health conditions in H&Ps.

Differences between sex and age groups were also investigated. When divided by gender, 28 (60.8%) of the females and 32 (41.5%) of the males

screened as high-risk (p = 0.06). When divided between the two age groups, ages 18-50 and ages 51-72, we saw 31 (56%) of the younger group were identified as high-risk compared to 29 (43%) of the older group (p = 0.18). There were no significant differences observed in gender nor age groups among the mental health conditions.

Within the second objective, the effect of research screening on clinic workflow was measured by the number of patients per clinic. The average number of patients seen per clinic was approximately 11, regardless of research screening presence. As such, there were no statistical differences between the average number of patients seen while research was being conducted and while research was absent (p = 0.95).

The third objective relied on volunteer feedback to assess the effect of the research screening on workflow activity. Of the 196 responses from student clinic volunteers, only 5 (2.6%) selected the option "Yes, it interfered but did not produce a negative outcome" and 0 selected the option "Yes, it interfered, and it produced a negative outcome/experience." The remaining volunteers, 191 (97.4%), indicated either that there was no impact or that they were unaware of any impact screenings had on clinic operations.

Discussion

Our findings identify 48.8% of the screened patients as high-risk for mental health conditions. Unfortunately, a majority of these patients are under-identified with current SRFC operations, potentially leading to inadequate utilization of resources. Incorporating a mental health screening team into the clinic showed no negative impact on the number of patients seen and volunteer perception of clinic workflow activity. This suggests that integrating mental health screening into established SRFCs may not interfere with clinic operations. Further, we propose our study may aid in our providers' approach to improving care. It is important as a healthcare professional within the osteopathic community to be mindful of mental health in treating the whole person.[14] The growing evidence of untreated and under-treated high-risk mental health conditions for individuals experiencing homelessness highlights the importance of addressing these issues that

coincide with other health-related concerns.[4]

Baggett et al. also describe this lack of recognition of specific needs in healthcare in persons experiencing homelessness; 21% of the subjects in their study reported an unmet need for mental health care or counseling.[4] Further, our study found no significant difference among ages and gender, underscoring the importance of addressing all demographics of people experiencing homelessness. An important step in reducing the risk of continued homelessness is recognizing at-risk patients and guiding them to where they may find treatment or assistance. This was initiated with the current study by identification and providing relevant contact information on compact resource cards. The first steps to addressing mental health in this population involve initiating, educating volunteers about, and emphasizing screening for mental health conditions during healthcare visits.

Limitations

Many of our limitations are a result of clinic scheduling, availability of screeners and preceptors, and the resources allocated to the project and to CASS. Some limitations of our research were small sample size and representation. Due to English-dictated questionnaires and the lack of professional translators, non-English speaking patients had to be excluded from the study as we could not ensure consistency and uniform comprehension. This introduced selection bias secondary to a limited population available for screening as all our participants were English-speaking; for reference, 37.4% of Phoenix's residents are non-English speaking.[15] Despite these limitations, the findings of this study may still be of interest given that similar quality improvement interventions conducted within SRFCs have demonstrated the potential to increase the variety of services offered and improve clinic performance.[8] Our findings may still capture relevant information that can be used to drive immediate steps in providing mental health resources to those identified as high-risk.

The CASS SRFC does not directly offer any mental health services, and there was no follow-up to ensure patients contacted the resources provided. Thus, the outcome of mental health screening referrals has yet to be determined.

Future Directions

Our main areas of interest for future directions include assessing the quality of acute-care, including mental health, provided in our SRFC as well as expanding the population to which we provide screening. While our current research looked at the CASS clinic, further research would explore other homeless facilities. In broadening our research sites, we hope to capture a more demographically representative sample to assess how mental health affects families, ages, and cultures. One such subgroup may include families experiencing homelessness and financial stress. Looking at these cycles in families may provide information that can inform earlier support services for younger members of a household.

We hope that expanding the language offering of mental health screening will provide insight into how other cultures understand mental health. We may also consider include translating services to reach non-English speaking populations or offering validated surveys in non-English languages. It is a driving interest to understand culturally appropriate services and how this contributes to providing and communicating more effectively in the healthcare setting.

The multidisciplinary nature of the clinic may also offer additional growth in this subject. Interprofessional collaboration supports the expansion of a screening implementation program and allows for greater identification of high-risk patients. Further recognition of mental health conditions may mean more individuals receive the resources and treatment they need.

Conclusion

This study led to the implementation of mental health screenings and standardized face sheet being integrated into current SRFC-operations at CASS to improve holistic care to patients. The findings of this study demonstrate the importance of evaluating current acute-care practices within the clinic to improve comprehensive patient care based on the prevalence of mental health within the population being served. Optimization of workflow is made possible by developing groundwork that established how our piloted survey compared to previous practice and how this approach can be used in other clinics.

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