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Patient and provider factors associated with follow-up for positive depression screens in adults: a retrospective review of University of Utah primary and specialty care clinics

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ABSTRACT

Objective To identify patient and provider factors associated with lower rates of follow-up for positive depression screens in outpatient settings.

Design Retrospective cohort study with electronic health record analysis investigating factors associated with follow-up care for patients with moderate-to-severe depressive symptoms. Patient and provider variables were associated with rates of follow-up for positive depression screens.

Setting University of Utah and University of Utah Health-affiliated primary care and specialty clinics.

Participants Adults who screened positive for depressive symptoms (score≥10) on the Patient Health Questionnaire (PHQ-9) at an ambulatory visit between 1 January 2021 and 31 January 2022. A total of 17 651 patients were included in the study.

Outcome measures Follow-up for positive depression screens was defined as a new antidepressant prescription or completed mental health visit. Variables associated with follow-up included patient demographic data, anthropometric measures, geographical classification, primary language, comorbidities and socioeconomic factors as well as provider demographics, level of training and clinic type.

Results 5396 patients (30.6%) did not receive follow-up care for a positive PHQ-9 screen. Factors associated with lower rates of follow-up included male patients (gender; p=0.013), older patients (age group; p=0.016), non-White patients (ethnicity; p<0.0001), non-English (primary language; p<0.0001), lack of insurance (p<0.0001), older providers (p=0.027), male providers (p=0.0037) and attending-level providers (p<0.0001).

Conclusions Significant discrepancies in follow-up for positive depression screens in the ambulatory setting exist, particularly among racial/ethnic minority groups and patients who are non-native English speakers. Older providers and attending-level providers were less likely to facilitate follow-up for positive depression screens in their clinics.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ Uses electronic health record data to assess differences in depression follow-up based on patient socioeconomic data in addition to anthropometric, demographic and health-related variables.
⇒ Examines the provision of follow-up care for patients with depressive symptoms by different provider levels and across different clinic types, including primary care and specialty clinics.
⇒ Low rates of depression screening overall led to a smaller population size.
⇒ While we can identify relationships between depressive symptom follow-up and patient/provider variables, establishing causality is not attainable with an observational analysis.

BACKGROUND

Major depressive disorder (MDD) is a common mental health diagnosis, affecting an estimated 8.4% of all US adults in 2020.[1] The economic, interpersonal and medical burden of depression is costly. It is a leading cause of disability and accounts for over 200 billion US$ annually, primarily due to lost productivity in the workplace.[2] Individuals with unrecognised and untreated depression experience a significantly reduced quality of life compared with those without depression.[3] Moreover, major depression is a risk factor for comorbid conditions and can exacerbate existing chronic conditions such as cardiovascular disease, diabetes and obesity.[4] Meta-analyses have demonstrated higher mortality rates among individuals with both clinical depression and subclinical depressive symptoms compared with those without depressive symptoms.[5 6] Despite the increasing number of depression diagnoses, there has not been a proportional increase in treatment.[7]

In recent years, notable advances have been made in improving the well-being and mental health of patients with depression through behavioural health counselling and

pharmacotherapy. However, data continue to show that depression remains underdiagnosed and undertreated.[8] Indeed, over half of cases of depression in the primary care setting are not appropriately diagnosed.[9] Beyond this, among those correctly diagnosed, it is estimated that only approximately 35% of individuals seen in primary care clinics receive antidepressant medication and/or psychotherapy.[10]

To address these issues, the United States Preventive Services Task Force (USPSTF) has recommended routine screening for depression in all adults, which can be conducted using tools such as the Patient Health Questionnaire-9 (PHQ-9).[11] The PHQ-9 is a widely used nine-item survey that assesses depressive symptom severity based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition criteria for depressive disorders.[12 13] Crucially, the USPSTF recommendation emphasises that screening does not equate to a diagnosis, and it should only be implemented in healthcare settings equipped to properly evaluate and address depressive symptoms.[11]

Following the emergence of the USPSTF recommendation, the detection of depression has increased but remains suboptimal, particularly among vulnerable populations. Recent studies indicate that racial and ethnic minority groups, as well as individuals with limited English proficiency, are less likely to be screened for depression.[14–17] These disparities in screening are compounded by inequities in subsequent care engagement, such as the initiation of depression treatment.[15 18] The Cascade of Care (COC) model for suicide prevention provides a useful framework for examining this progression from screening to treatment, identifying key stages where patients may disengage or fail to receive necessary care.[19] The model highlights the interconnected nature of inequities in depression care, suggesting that disparities in the detection of depression may exacerbate those in treatment, further widening gaps in mental health outcomes.[19]

Addressing these care gaps requires a multidisciplinary approach to ensure timely follow-up and treatment after a positive depression screen. Collaborative care has emerged as an effective method, significantly improving depression outcomes compared with standard care in primary care settings.[20–22] Unfortunately, the lack of timely follow-up and treatment continues to limit the overall benefits of screening.

OBJECTIVE

To date, studies investigating factors contributing to inadequate and inequitable follow-up and treatment of depressive symptoms are limited. Additionally, while various clinical decision tools have been developed and used to facilitate care for patients with positive depression screens, they do not effectively target high-risk groups such as racial and ethnic minorities.[12 20] Our study aims to identify clinical, socioeconomic and provider characteristics that are associated with lower rates of follow-up for positive depression screens in an academic ambulatory setting. By comparing factors between patients who received follow-up and those who did not, we can identify patient and provider groups at higher risk for undertreatment of depressive symptoms. These data will inform future efforts to develop a coordinated, collaborative referral pathway and treatment plan for individuals with positive depression screens, with a specific focus on at-risk groups.

METHODS

Design and setting

This study is a retrospective cohort study using electronic health record (EHR) analysis. It was conducted at the University of Utah and University of Utah Health-affiliated clinics during a specified time frame. The study aimed to assess factors associated with the provision of follow-up care for patients with moderate-to-severe depressive symptoms identified through PHQ-9 screening. EHR data were obtained from 30 clinic locations comprising 27 different specialties including primary care and various medical and surgical subspecialties. To protect patient privacy and comply with ethical guidelines, all patient information was de-identified before analysis. This study was approved by the University of Utah Institutional Review Board (IRB #00155273) and granted a waiver of informed consent due to the retrospective nature of the data collection and the de-identification of patient information.

Patient and public involvement

We did not directly involve patients or the public in any stage of our study. The design and outcome measures were selected by the research team based on established clinical guidelines and prior research. The study used the existing EHRs, and there was no direct recruitment of participants by the research team. Therefore, patients and the public were not involved in the recruitment process.

Study population

The study population consisted of adults aged 18 years or older who had a clinic visit at the University of Utah Health-affiliated sites between 1 January 2021 and 31 January 2022. From the initial pool of participants, those who had received a PHQ-9 screen at an ambulatory visit and scored 10 or higher, indicating moderate-to-severe depressive symptoms, were included in the study. Within the studied healthcare system, a positive PHQ-2 screen was not routinely administered prior to the PHQ-9. Patients with PHQ-9 scores between 0 and 4 (minimal symptoms) or 5 and 9 (mild symptoms) were excluded because clinical intervention is not warranted in these cases. Patients who had a prior positive screen (score of 10 or higher) within 9 months of the initial visit or who had incomplete or missing data were also excluded from the analysis. A 9-month cut-off was used to align with our institution's definition of an episode of care, reflecting the standard

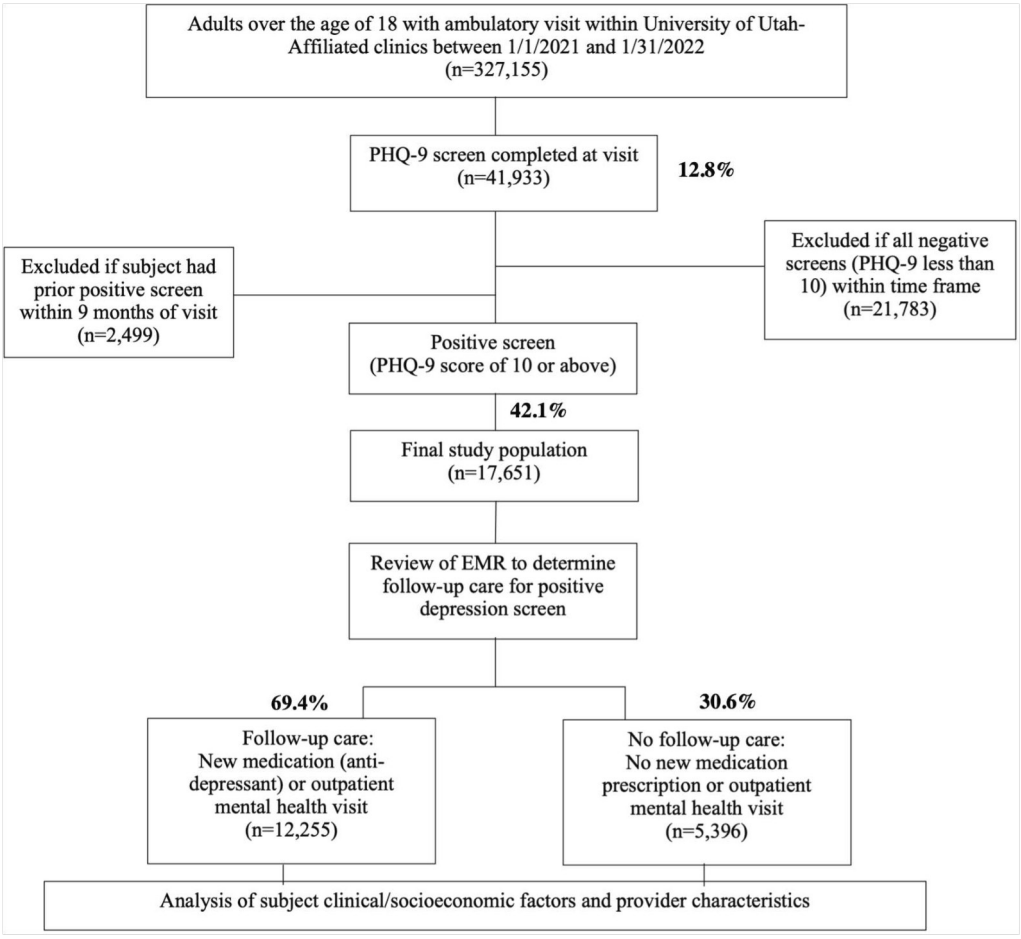

Figure 1 Study design. PHQ-9, Patient Health Questionnaire-9; EMR, electronic medical record.

screening interval. Once patients meeting the inclusion criteria were identified, a binary outcome variable was created to indicate those who received adequate follow-up care for the positive PHQ-9 screen and those who did not receive follow-up care. Follow-up care was defined as a new antidepressant prescription or a completed mental health visit within 9 months of the positive depression screen (figure 1). If neither of these criteria were met, the outcome variable was classified as not receiving follow-up care. A list of antidepressants included can be found in the supplemental content (online supplemental table 1). Completed mental health visits were defined as visits to behavioural health providers within our health system. Our institution has a broad network of behavioural health integration services, and patients are often referred to in-system providers to ensure coordinated care. While primary care providers (PCPs) may occasionally receive information about external mental health visits, these visits are not tracked in the EHR and, therefore, were not included in the analysis.

Data collection

Data on patients and providers were collected from the EHR and linked to follow-up appointment records. All included patient encounters were conducted using the standard clinical care already implemented in the university health system. Data were collected on the following patient variables: age, gender (female at birth and male at birth), race/ethnicity (White/Caucasian, Hispanic or Latino/a/x, unknown/declined, other/multirace, Asian, Black/African American, Hawaiian/Pacific Islander and American Indian/Alaska Native), height (inches), weight (pounds), body mass index (BMI; kg/m^2), smoking history (never smoked, former smoker, current smoker and passive smoker), alcohol use (current use and no current use), geographical classification (rural and urban), primary language (English and non-English), education level (less than high school, high school/general educational development, some college, associate degree, Bachelor's degree, Master's degree, Doctorate and professional school degree), insurance plan (self-pay, commercial, Utah (UT) Medicaid, UT Medicare and other), number of emergency department (ED) encounters during the time frame (0, 1–2, 3 and >3), Charlson Comorbidity Index (CCI) score (0, 1–2, 3–4 and >5), diagnosis of diabetes, PHQ-9 severity (moderate, moderately severe and severe), possible suicidality as reported on the PHQ-9 (not at all, several days, more than half the days and nearly every day) and Generalised Anxiety Disorder-7 (GAD-7) severity (normal, mild, moderate, moderately severe and severe).

Provider-related variables included provider age, role (advanced practice clinician, resident, fellow, attending and other) and gender. We also evaluated for differences in follow-up by clinic type (primary care and specialty care clinics). A full list of clinics included in the study is listed in the supplemental content (online supplemental table 2).

Statistical analysis

Descriptive statistics were used to summarise patient and provider characteristics. Clinical and socioeconomic patient characteristics, as well as provider factors, were analysed to assess whether significant differences existed between individuals receiving follow-up care and those not receiving follow-up care. Bivariate analyses were performed using paired t-tests for continuous variables and χ^2 tests for categorical variables to compare patients who received follow-up and those who did not. For each variable, patients with missing data were excluded only from the analysis of that specific variable; however, they were retained in the analyses for other variables where complete data were available. Statistical significance was defined as p value<0.05. Data cleaning and analysis were completed using Python (Python Software Foundation, www.python.org), V. 3.9.

FINDINGS

Baseline characteristics

A total of 327 155 individuals had an ambulatory care visit within the examined period and 41 933 (12.8%) of those individuals completed a PHQ-9 screen. Of those who completed a PHQ-9 screen, 24 282 patients (57.9%) were excluded because they had a prior positive screen within 9 months of the initial visit or because all their screens were negative (score of less than 10) during the study period. Our final study population included 17 651 patients who scored a 10 or above and met the inclusion criteria for the study (figure 1). The mean age of the study population was 38 years (SD=15.88), and 65.8% of patients were female at birth (table 1). Most patients (69.6%) identified as White, followed by Hispanic/Latino (14.1%) and other races/ethnicities (table 1). Additional baseline characteristics of the study population are listed in table 1. We found that 12 255 patients (69.4%) received follow-up care (defined as a new antidepressant prescription or completed outpatient mental health visit), and 5396 patients (30.6%) did not receive follow-up care for the positive PHQ-9 screen.

Table 1 Baseline characteristics of the study population by age, gender and race/ethnicity

Description	Frequency	Prevalence (%)
Age (years) mean±SD	38.37±15.88	
Age group (years)		
18–35	8820	50.0
36–50	4636	26.3
51–65	2760	15.6
>65	1429	8.1
Gender		
Men	6029	34.2
Women	11 619	65.8
Race/ethnicity		
White/Caucasian	12 281	69.6
Black/African American	296	1.7
Asian	334	1.9
Hispanic or Latino/a/x	2488	14.1
American Indian or Alaska Native	94	0.5
Hawaiian or Pacific Islander	161	0.9
Other or multirace	513	2.9
Unknown or declined	1484	8.4

Patient-related factors

Patient-related factors that were associated with rates of follow-up for depressive symptoms are listed in table 2. Individuals who were male at birth (p=0.013) and in older age groups (p=0.016) were significantly less likely to receive follow-up care for depressive symptoms. Additionally, significantly lower rates of follow-up were seen in those who identified as being non-White (p<0.0001) and who were non-native English speakers (p<0.0001). There was no significant association found between follow-up for depressive symptoms and anthropometric measures, including BMI, height and weight. Patients who had no insurance (self-pay) were significantly less likely to receive follow-up care for depressive symptoms in comparison with those who had various forms of insurance (p<0.0001). Patient health-related factors that were significantly associated with higher rates of follow-up for depressive symptoms included a diagnosis of diabetes (p=0.011), more frequent ED encounters (p=0.013), more severe depressive scores by PHQ-9 (p<0.0001), suicidality as reported on PHQ-9 (p<0.0001) and increased anxiety symptoms as reported on the GAD-7 scale (p<0.0001). CCI score was not associated with the likelihood of follow-up for depressive symptoms. Behavioural characteristics, including tobacco use, alcohol use and education level, were not significantly different in those who received follow-up versus those who did not receive follow-up for positive depression screens.

Provider-related factors

Provider-related factors that were analysed in this study can be found in table 3. We found that as the provider age group (18–35, 36–50, 51–65 and >65 years) increased, the percentage of follow-up for positive screens decreased. Differences between these groups were statistically significant (p=0.027). Male providers were significantly less likely to treat depressive symptoms or arrange for

Table 2 Patient-related characteristics stratified by follow-up status for depressive symptoms

Factor	Groups	Total	Follow-up	No follow-up	No follow-up (%)	P value
Age (years)	18–35	8820	6270	2550	28.9	
	36–50	4636	3196	1440	31.1	
	51–65	2760	1880	880	31.9	
	>65	1429	906	523	36.6	0.016
Gender	Female at birth	11619	8197	3422	29.5	
	Male at birth	6029	4057	1972	32.7	0.013
Race/ethnicity	White/Caucasian	12281	8801	3480	28.3	
	Hispanic or Latino/a/x	2488	1586	902	36.3	
	Unknown or declined	1484	996	488	32.9	
	Other or multirace	513	325	188	36.6	
	Asian	334	213	121	36.2	
	Black/African American	296	187	109	36.8	
	Hawaiian or Pacific Islander	161	88	73	45.3	
	American Indian or Alaska Native	94	59	35	37.2	<0.0001
White versus non-white	White/Caucasian	12281	8801	3480	28.3	
	Non-White	5370	3454	1916	35.7	<0.0001
Primary language	English	16857	11866	4991	42.1	
	Non-English	787	385	402	51.1	<0.0001
Insurance class	Self-pay	1259	795	464	36.9	
	Commercial	11265	8097	3168	28.1	
	Other	221	155	66	29.9	
	Medicaid	2581	1708	873	33.8	
	Medicare	1927	1275	652	33.8	<0.0001
Insurance coverage	Self-pay	1259	795	464	36.9	
	Non-self-pay	15994	11235	4759	29.8	<0.0001
Diagnosis of diabetes	No diabetes	15829	11076	4753	30.0	
	Diabetes	1822	1179	643	35.3	0.011
Number of ED encounters	0 encounters	14680	10069	4611	31.4	
	1–2 encounters	2492	1811	681	27.3	
	3 encounters	225	174	51	22.7	
	>3 encounters	254	201	53	20.9	0.013
PHQ-9 severity (score)	Moderate (10–14)	8522	5601	2921	34.3	
	Moderately severe (15–19)	5712	4046	1666	29.2	
	Severe (20–27)	3417	2608	809	23.7	<0.0001
Suicidality by PHQ-9 (#9 response)	Not at all (0)	11065	7395	3670	33.2	
	Several days (1)	4247	3094	1153	27.1	
	More than half the days (2)	1400	1054	346	24.7	
	Nearly every day (3)	922	704	218	23.6	<0.0001
GAD-7 severity (score)	Normal (0–4)	737	427	310	42.1	
	Mild (5-–9)	1713	1123	590	34.4	
	Moderate (10–14)	3655	2560	1095	30.0	
	Moderately severe (15–17)	4141	3085	1056	25.5	
	Severe (18–21)	5032	3998	1034	20.5	<0.0001
CCI severity (score)	None (0)	10880	7549	3331	30.6	
	Mild (1–2)	4592	3214	1378	30.0	
	Moderate (3–4)	1059	728	331	31.3	

Continued

Table 2 Continued

Factor	Groups	Total	Follow-up	No follow-up	No follow-up (%)	P value
	Severe (>5)	1120	764	356	31.8	0.91
Tobacco use	Never smoked	11542	8065	3477	30.1	
	Former smoker	3259	2278	981	30.1	
	Current smoker	2284	1511	773	33.8	
	Passive smoker	160	117	43	26.9	0.37
Alcohol use	No current use	9608	6635	2973	30.9	
	Current use	6518	4503	2015	30.9	0.17
Education level	Less than high school	26	20	6	23.1	
	High school graduate/GED	99	78	21	21.2	
	Some college, no degree	134	116	18	13.4	
	Associate degree	69	56	13	18.8	
	Bachelor's degree	131	113	18	13.7	
	Master's degree	46	37	9	19.6	
	Doctorate	11	8	3	27.3	
	Professional school degree	6	4	2	33.3	0.06

CCI, Charlson Comorbidity Index; ED, emergency department; GAD-7, Generalised Anxiety Disorder-7; GED, general educational development; PHQ-9, Patient Health Questionnaire.

follow-up compared with their female counterparts (p=0.0037). Patients with depressive symptoms were significantly less likely to receive follow-up care for a positive depression screen if they were seen by attending physicians compared with providers at the non-attending level, including residents, fellows and other advanced practice providers (p<0.0001). Positive screens that were administered in specialty clinics were associated with significantly lower rates of follow-up compared with that of primary care clinics (p<0.0001).

DISCUSSION

In this retrospective cohort study of over 17000 patients who screened positive on the PHQ-9 in an academic ambulatory setting, we demonstrate that follow-up care for depressive symptoms is inadequate and impacted by demographic and socioeconomic characteristics of patients as well as provider and clinical setting factors. Approximately 30% of patients with a PHQ-9 score of 10 or higher did not receive follow-up care as defined by a

Table 3 Provider-related characteristics stratified by patient follow-up status for depressive symptoms

Factor	Groups	Total	Follow-up	No follow-up	No follow-up (%)	P value
Provider age (years)	18–35	4317	3125	1192	27.6	
	36–50	9648	6675	2973	30.8	
	51–65	3175	2131	1044	32.9	
	>65	477	305	172	36.1	0.027
Provider gender	Male	8211	5533	2678	32.6	
	Female	9378	6687	2691	28.7	0.0037
Provider role	APC	5905	4080	1825	30.9	
	Resident	1285	995	290	22.6	
	Fellow	130	103	27	20.8	
	Attending	8457	5669	2788	33.0	
	Other	1874	1408	466	24.9	<0.0001
Attending status	Non-attending	8717	6267	2450	28.1	
	Attending	8457	5669	2788	33.0	0.00053
Clinic type	Primary care	13567	8914	4653	34.3	
	Specialty clinic	1532	800	732	47.8	<0.0001

APC, advanced practice clinician.

completed mental health visit or a new antidepressant prescription. While we acknowledge that a positive screen does not equate with a diagnosis of depression and thus may not necessitate follow-up care, our study suggests a gap in mental healthcare.

Patients who identified as non-White and who were non-native English speakers had low rates of follow-up for depressive symptoms. Thirty-five per cent of non-White patients and over 50% of non-native English speakers did not receive appropriate follow-up care for positive depression screens. This finding adds to multiple studies showing that racial and ethnic minority individuals and individuals with limited English proficiency are less likely to be evaluated for depression, both before and after the implementation of the USPSTF recommendation for universal screening among adults.[14–16 23] It has also previously been shown that these vulnerable populations are less likely to be initiated on treatment for depression.[15 18] The deficiency and disparity in care engagement diminish the benefit of screening and increase the burden of disability that is already disproportionately high among minority groups.[23] Continued utilisation of frameworks such as the COC model for suicide prevention may help to bridge these gaps in care by ensuring that at-risk individuals receive timely and appropriate interventions, thereby improving mental health outcomes and reducing disparities among vulnerable populations.[19]

We also show that older adults, men and those who lack insurance are significantly less likely to receive appropriate follow-up for depressive symptoms. Again, these findings are built on prior research. In a study on depression assessment prevalence, which included 1852 adults aged 35 years and older, Kato *et al* determined that adults aged 75+ years (OR: 0.47; 95% CI 0.46 to 0.72), men (OR: 0.58; 95% CI 0.46 to 0.72) and uninsured individuals (OR: 0.30; 95% CI 0.18 to 0.51) were less likely to be assessed for depression.[15] Our study population was predominantly woman (65.8%) and young (50% aged 18–35 years), which further supports the finding that screening rates are low among men and older individuals. Our results suggest that the disparities exist not only in assessing depression but also in responding to depressive symptoms.

It is important to consider provider factors that affect depression screening and follow-up when developing targeted approaches to the advancement of mental healthcare. The current study shows that older providers, male providers and those practising at an attending level are significantly less likely to treat and/or coordinate follow-up care for patients with depressive symptoms. To our knowledge, no studies to date have evaluated specific provider characteristics associated with discrepancies in depression screening or follow-up. Based on our results, provider education and engagement should be considered a key aspect of future efforts to increase the rates of follow-up for depressive symptoms.

The setting in which depression assessment and follow-up are conducted should also be taken into consideration, as our data show that rates of follow-up are significantly lower when screening takes place in specialty clinics compared with primary care clinics. Decreased rates of follow-up at specialty clinics may be related to a lack of resources such as social work, a service that often helps to facilitate mental/behavioural health therapy, as well as less provider knowledge and familiarity in treating depression compared with PCPs.

Insurance coverage can be a major barrier to mental healthcare. We demonstrate that those who self-pay have significantly lower rates of follow-up for positive depression screens compared with those with insurance. Unfortunately, even those with federal health insurance had low rates of follow-up. Among those using Medicare and Medicaid, over 30% did not receive follow-up for positive depression screens. This finding may reflect a lack of coverage for mental health providers in these plans.

There are several limitations of our study. We defined follow-up care as a new antidepressant prescription or completed mental health visit. Because we did not assess for mental health referrals, which may have been ordered by the provider but not completed by the patient, it is possible that the provider's effort to discuss further assessment and treatment options and to coordinate follow-up care was underestimated. We did not track the source of new antidepressant prescriptions, so we could not determine whether they were initiated by PCPs or specialty mental health providers. This restricts our understanding of the prescribing practices within our health system. It is also possible that patients with positive depression screens were referred outside of the health system included in our data collection or received mental health services elsewhere in the community. Furthermore, providers may have evaluated some patients with positive depression screens and found them not to meet the criteria for MDD and thus not initiate or recommend treatment. These factors could result in lower reported rates of follow-up, which may not accurately reflect the shortcomings of the healthcare system. Finally, we do not have data on the specific interval between depression screening and the first follow-up care for individual patients, which limits our ability to assess the timeliness of follow-up interventions.

Our findings reflect the current practice in the University of Utah health system, which is a large academic centre. Notably, several University of Utah community care health centres from across the state were included in the study, making our study population demographics comparable to that of the state of UT. Nevertheless, it may be difficult to apply our conclusions to other academic institutions or community-based health centres, especially outside of UT.

It is noteworthy that only 12.8 per cent of the initial population completed a PHQ screen during the examined time period. Low rates of screening may reflect a lack of incorporation of routine PHQ administration in the workflow of specialty care clinics. Depression screening is included in the standard of care for many chronic diseases managed by certain specialists, but

other specialty providers may be appropriately deferring depression screening because of their lack of expertise in the area. If future screening rates improve, it is likely that the total population will diversify, which could affect the findings.

Our data were obtained from the review of the EHR and relied on patient reporting for several categories, including race/ethnicity, language preference and behavioural factors such as tobacco use, alcohol use and education level. In particular, there was significant missing data for education level due to low rates of patient reporting.

While our study brings to light several gaps in mental healthcare, we also demonstrate some strengths in our health system. We found that patients with higher depression symptom severity scores and patients with comorbidities, such as anxiety and diabetes, were more likely to receive follow-up. Patients of younger providers were more likely to receive follow-up care for depressive symptoms, and this may signify improved training and comfort in the recognition and treatment of depression.

CLINICAL IMPLICATIONS

Overall, positive depression screens have not been met with adequate clinical action, particularly among the elderly, men, individuals of racial/ethnic minority and non-native English speakers. Certain provider factors (men and increasing age) were predictors of reduced clinical action as well. Further study is needed to elucidate barriers to follow-up, with an emphasis on these high-risk groups. Understanding whether the lack of follow-up is related to patient preference, socioeconomic barriers, suboptimal provider education or other patient and provider factors will be crucial to designing effective systems to improve depression care. Progress in this area requires system-based approaches that leverage multidisciplinary team members, community resources and provider buy-in to ensure comprehensive and equitable follow-up for positive depression screens.

Contributors TB conceptualised the study, developed the methodology and wrote both the original and revised drafts of the manuscript. She is the guarantor of the manuscript and takes full responsibility for the integrity of the work and the accuracy of the data presented. TE and DD contributed to data collection and performed data analysis. RW was responsible for study conceptualisation and supervision and contributed to the review and editing of the manuscript. KK contributed to the study's conceptualisation and supervision and assisted in reviewing and editing the manuscript. DR was involved in study conceptualisation and supervision and also contributed to the review and editing of the manuscript.

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