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ENHANCING MENTAL HEALTH SCREENING IN FAMILY MEDICINE

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ABSTRACT

Background: Mental health disorders are common in primary care settings and contribute to high levels of disability, mortality, and healthcare costs. Despite awareness efforts, underdiagnosis remains a persistent issue. The Problem-Oriented Patient Report (POPR) was introduced as a screening tool to enhance the detection of mental health conditions in primary care. **Methods:** This study was conducted in two primary care clinics with different administrative structures. The POPR, a self-reported checklist covering physical and mental symptoms, was administered to patients while waiting for their appointments. Physicians reviewed the completed forms, and patient charts were analyzed to assess existing and newly diagnosed mental health conditions. Data were statistically evaluated using SPSS to compare diagnostic rates and patient characteristics across clinics. **Results:** A total of 1,055 patients were approached, with significantly higher participation at the independent clinic (91.4%) compared to the hospital-affiliated clinic (37.1%). Physicians at both clinics documented very few new mental health diagnoses despite the identification of potential cases by the POPR. Depression and anxiety were the most frequently flagged conditions, yet 64% to 95% of patients with these symptoms remained undiagnosed. Physician engagement with the screening tool was limited, and additional training did not significantly improve diagnostic rates. **Conclusion:** Despite its ease of use, the POPR did not significantly increase the detection of mental illnesses in primary care. Structural and attitudinal barriers among physicians, along with competing clinical demands, contributed to the low utilization of the tool. Future interventions should explore multifaceted strategies, including improved physician training, workflow integration, and patient advocacy, to enhance mental health screening in primary care.

KEYWORDS: Despite awareness efforts, underdiagnosis remains a persistent issue.

INTRODUCTION

Mental health disorders are commonly encountered in primary care settings[1-3], leading to significant levels of disability and mortality[4-7] while also imposing a substantial economic burden on society.[4] According to projections by the World Health Organization (WHO), mental illnesses are expected to account for 15% of the global disease burden by 2020, with depression emerging as the leading cause of disability worldwide, as measured by Disability-Adjusted Life Years (DALYs).[7,8] In economic terms, the financial impact of depression in terms of direct and indirect costs has been estimated at $60 billion annually, while overall productivity losses due to mental health conditions reach approximately $80 billion per year.[9]

Primary care is often considered the default setting for mental health treatment[10,11], as many individuals experiencing psychiatric conditions initially consult primary care providers.[12] It is estimated that primary care physicians manage around 80% of mental health cases[13], as patients frequently present with physical complaints that mask underlying psychiatric disorders, particularly in conditions such as panic disorder.[14, 15] Additionally, concerns about stigma associated with psychiatric care lead many individuals to seek help from primary care physicians instead of mental health specialists[16] Data from the Epidemiological Catchment Area study indicate that nearly half of all individuals receiving treatment for mental health or substance use disorders access care through primary care services.[17,18] A systematic review found that approximately one in

eight patients in primary care has an undiagnosed psychiatric condition.[4]

Despite the prevalence of mental health conditions, primary care physicians often fail to identify them accurately.[6, 17] Research indicates that major depressive disorder (MDD) is detected less than half the time in primary care settings[17], and mood disorders are identified at rates no better than chance.[3] Several factors contribute to this under-diagnosis, including differences in the workflow and clinical approach between primary care and mental health practices, which make it challenging to implement standard psychiatric diagnostic techniques.[12] Time constraints further limit the ability of primary care providers to distinguish between physical and psychological symptoms during brief consultations. Many patients experiencing mental health conditions report predominantly physical symptoms rather than emotional distress, further complicating diagnosis.[4, 12, 18] Anxiety disorders are particularly difficult to detect, as their symptoms often mimic those of general medical conditions[3], leading to frequent misdiagnosis.[2] Additionally, conditions such as alcohol and substance use disorders, which affect approximately 16% to 20% of general medical patients, are frequently overlooked in primary care.[3] Similarly, dementia often remains undiagnosed in this setting.[19]

Patients with mental health conditions utilize healthcare services more extensively than those without such disorders.[2] Research on over 12,000 high-utilization patients within a healthcare system found that individuals with active or partially treated depression had significantly higher rates of hospitalization and clinic visits compared to non-depressed individuals with similar medical conditions.[20] Mental health conditions, including depression, anxiety, and substance dependence, have been linked to worsening of various medical conditions, such as diabetes, cardiovascular disease, and neurological disorders.[2, 16] Despite numerous public awareness efforts, under-diagnosis and insufficient treatment of mental illnesses in primary care remain persistent challenges.[2, 3, 6]

To improve the identification of psychiatric conditions, several screening tools have been developed and validated by mental health professionals for use in primary care settings. Two widely recognized instruments are the PRIME-MD-PHQ[21] and the SDDS-PCä.[22, 23] A simple two-question screening approach that assesses depressed mood and anhedonia has been found to identify up to 95% of individuals with major depressive disorder (MDD).[24] However, while these tools effectively detect depression, they do not comprehensively screen for other common psychiatric conditions such as anxiety, substance use disorders, and other mental illnesses frequently seen in primary care.

Despite the availability of screening instruments, they have not gained widespread adoption in primary care due to time constraints and their emphasis on psychiatric diagnostic criteria, which may not align with the clinical approach of general practitioners.[2, 25] The diagnostic framework provided by the DSM-IV is often impractical for primary care providers, who typically prioritize ruling out physical conditions before considering psychiatric diagnoses.[26] Given these limitations, mental health assessment tools should be designed with primary care workflow in mind, rather than strictly adhering to psychiatric evaluation frameworks.[25]

To address these challenges, an alternative approach was developed: the Problem-Oriented Patient Report (POPR), a self-reported checklist completed by patients while waiting for their appointment. The POPR is not a diagnostic tool but rather a screening aid intended to prompt physicians to consider the possibility of underlying mental health conditions and facilitate discussion with the patient. Unlike traditional psychiatric screenings, the POPR presents mental health symptoms alongside general medical symptoms in a format similar to standard medical intake forms, reducing stigma and encouraging disclosure of emotional distress. Additionally, by integrating mental and physical symptoms—including fatigue, sleep disturbances, appetite changes, and somatic complaints related to anxiety and depression—the POPR enables physicians to recognize symptom clusters associated with psychiatric conditions.

The present study aimed to compare self-reported mental health symptoms recorded using the POPR in primary care settings with clinicians' actual diagnoses. This initial investigation seeks to enhance the early detection of psychiatric conditions in primary care without imposing additional time burdens on busy clinical practices.

METHODS
Study Setting
This research was carried out in two healthcare facilities: a hospital-affiliated clinic (HC) and an independent, publicly funded clinic (SA). Both sites function as primary healthcare providers for a predominantly low-income, urban population.[27, 28] The clinics handle around 800 outpatient visits each month, including 60 to 80 new patient registrations. They also serve as educational training grounds for medical students and internal medicine residents.

The study was executed through a collaboration between an academic biobehavioral research program and clinic leadership. Ethical clearance was obtained from the Institutional Review Board of the associated university.

Participants
The study aimed to include all patients engaged in ongoing primary care at the clinics. However, individuals attending for one-time consultations, such as annual physical examinations for work or school, as well as disability assessments, were not included. Additionally,

incarcerated individuals, non-English speakers, and those unable to provide informed consent due to cognitive impairment (e.g., severe dementia, intellectual disability, or psychosis) were excluded. Patients were screened only once and not at subsequent visits. All participants provided informed consent after receiving a full explanation of the study objectives and procedures.

Assessment Tool
The study utilized the Problem-Oriented Patient Report (POPR), a self-administered questionnaire completed by patients while waiting for their appointments. The POPR consists of a structured checklist with "yes" or "no" responses, covering both physical and psychological symptoms. It serves as an alert mechanism to help physicians identify potential mental health concerns.[25]

The checklist includes symptoms related to depression, anxiety, psychosis, dementia, alcohol dependency, substance abuse, and other frequently encountered psychiatric conditions. If necessary, responses can contribute to a DSM-IV Axis I diagnosis. Mental health-related questions are integrated alongside general health inquiries to encourage honest disclosure and to provide physicians with a broad overview of the patient's well-being.

Additionally, the Sheehan Disability Scale (SDS).[29, 30] was incorporated into the POPR. This tool measures the extent of functional impairment caused by emotional difficulties, requiring patients to rate their condition on a scale from 1 to 10. Prior studies have demonstrated its strong reliability and internal consistency.[30] A previous analysis involving 1,001 primary care patients revealed that over 80% of those diagnosed with psychiatric disorders had elevated SDS scores, and approximately half of the patients with high scores had at least one mental health condition.[30] The SDS was selected due to its brevity—it takes under a minute to complete—minimizing the burden on participants while still offering valuable insights.

Physicians needed only to glance at the completed POPR, paying attention to any "yes" responses and checking if any of the three disability scale ratings were 5 or higher.

Study Procedures
Before data collection commenced, the principal investigator conducted meetings with medical staff, including physicians and residents, to explain the study's objectives and how to use the POPR questionnaire.

During the study, a research assistant was available in the waiting area to help patients complete the form if needed. Patients then handed the completed POPR to their physician at the time of their consultation. Physicians were instructed to review the form before returning it to the research team. After the appointments, patient medical charts were retrieved and analyzed.

Chart reviewers were blinded to POPR results to prevent bias. The extracted data included records of chronic physical illnesses and previously diagnosed psychiatric conditions, with particular focus on the most recent medical visit when the POPR was reviewed. The principal investigator conducted periodic audits to ensure the consistency and accuracy of data collection. Chart retrieval was possible for 86% of cases within the study timeframe. All collected data were coded to maintain confidentiality.

The chart review was conducted to:
1. Determine the prevalence of pre-existing psychiatric conditions,
2. Identify the rate of newly diagnosed mental illnesses among new and returning patients during the study period, and
3. Assess the frequency of coexisting medical conditions.
   The chart review findings were compared to POPR responses. Patients who marked "yes" on POPR items corresponding to DSM-IV disorders—such as major depressive disorder (MDD), dysthymia, anxiety, psychosis, and substance use disorders—were classified as "potential positives" for those conditions.

Statistical Analysis
Data analysis was performed using SPSS Version 10.1. Existing medical and psychiatric diagnoses were adjusted for age and sex between the two study locations. Age-adjusted rates were calculated using direct standardization in 10-year intervals (16–25, 26–35, 36–45, 46–55, 56–65, 66–75, 76–85, 86–95), with the full study sample serving as the reference distribution.

For statistical significance testing:
- Two-tailed Student's t-tests were used for continuous variables,
- Two-tailed Mann-Whitney U-tests were applied to ordinal data due to non-normal distribution,
- Two-tailed Chi-square tests assessed categorical and proportion variables, and
- Two-tailed Fisher's Exact Test was applied where expected cell counts were <5.

RESULTS
A total of 1,055 individuals were invited to participate in the study, with 846 approached at the hospital-based clinic (HC) and 209 at the independent clinic (SA). At the HC, a significant proportion (59%) declined participation, while 3.7% were excluded. In contrast, the refusal rate at the SA was much lower at 7.2%, with only 1.4% of patients excluded. Among those approached, only 37% at the HC agreed to complete the forms, and of these, 76% were eventually returned by clinicians. This was in stark contrast to the SA, where more than 91% of participants filled out the forms, and 96% of those were returned.

In total, 181 medical records were reviewed from each facility. At the HC, 58 charts could not be accessed within the study's timeframe due to circulation among multiple departments, whereas at the SA, only two records were unavailable. The demographic characteristics of both patient groups were largely comparable in terms of age and the proportion of returning versus new patients. The average (SD) age was 52.2 (15.8) years in the HC sample and 48.9 (16.8) years in the SA sample. Additionally, the percentage of returning patients was nearly identical between the two settings—87% at the HC and 88% at the SA. However, the SA had a significantly higher proportion of female participants (70%) compared to the HC (52%), with a statistically significant difference ($p < 0.001$).

Table 1: Demographic Characteristics of Study Participants.

Characteristic	HC (n=181)	SA (n=181)	p-value
Mean Age (SD)	52.2 (15.8)	48.9 (16.8)	0.12
Female (%)	52%	70%	<0.001
Returning Patients (%)	87%	88%	0.89

Further analysis, adjusting for age and gender, revealed notable disparities between the two patient groups. Chart reviews suggested that the HC population had a greater burden of comorbid conditions ($p < 0.001$), with higher documented rates of alcohol dependence ($p < 0.005$) and substance use disorders ($p < 0.005$). These findings were further supported by patient-reported outcomes. Individuals at the HC reported more historical medical issues ($p < 0.005$) and current general health conditions ($p < 0.01$) than those at the SA. While the prevalence of several common ailments—such as obesity, sinus conditions, and degenerative joint disease—was similar across both settings, patients at the HC had significantly higher rates of anemia (9.4% vs. 4.4%), hepatitis (6.6% vs. 1.7%), and peripheral vascular disease (5.5% vs. 0.6%).

Table 2: Prevalence of Selected Comorbid Conditions.

Condition	HC (%)	SA (%)	p-value
Anemia	9.4%	4.4%	0.02
Hepatitis	6.6%	1.7%	0.005
Peripheral Vascular Disease	5.5%	0.6%	0.001
Obesity	23.1%	22.8%	0.91
Sinus Conditions	15.3%	14.9%	0.88

Mental Health Diagnoses

Self-reported mental health concerns, as identified by the standardized POPR instrument, aligned with national prevalence estimates, particularly for depression. However, chart reviews indicated that physicians at both sites documented very few new mental health diagnoses over the six-month period. At the HC, only two new mental health diagnoses were recorded, both in the same returning patient—one of which was ADHD, a condition not included in the formal analysis. Similarly, at the SA, only three returning patients received new mental health diagnoses, with no new cases identified among first-time visitors.

Midway through the study, research assistants observed that physicians were not actively utilizing the POPR checklist, with some forms being discarded and patients expressing concerns. To address this, the lead investigator provided additional training on the intake process. However, this intervention did not appear to improve the recognition or documentation of mental health conditions by clinicians.

A significant number of patients were flagged by the POPR as having potential but undiagnosed mental illnesses. For instance, among individuals identified as possibly experiencing depression (53 at the HC and 44 at the SA), physicians failed to diagnose 64% and 57% of these cases, respectively. The gap was even greater for anxiety disorders, with 95% of probable cases at the HC and 74% at the SA remaining undocumented in medical records. Similarly, discrepancies were observed in the recognition of other conditions, such as psychotic symptoms and substance use disorders, highlighting an underdiagnosis trend in primary care settings.

Table 3: Mental Health Diagnoses - Documented vs. Potential Cases.

Mental Health Condition	Identified by POPR (HC)	Documented (HC)	Identified by POPR (SA)	Documented (SA)
Depression	53	19 (36%)	44	19 (43%)
Anxiety Disorders	41	2 (5%)	31	8 (26%)
Psychotic Symptoms	10	1 (10%)	8	2 (25%)
Substance Use Disorder	18	3 (17%)	9	2 (22%)

DISCUSSION

The findings from this study highlight two key concerns. Firstly, despite extensive awareness campaigns over the past decade emphasizing the significance of mental health issues in primary care, diagnosis rates remain consistently low—an observation that aligns with previous research.[34, 35] This issue persisted even within academic medical institutions. Notably, even when patients explicitly documented their psychological symptoms and directly presented them to healthcare providers, these concerns were frequently disregarded, leading to missed diagnostic and treatment opportunities. However, this study did not assess the quality or effectiveness of treatment provided to those who were identified as having mental health conditions.

The study aimed to include all patients seeking care at the two participating clinics, a goal that was efficiently met at one facility but hindered at the other due to administrative and logistical obstacles. Barriers at the second location stemmed from both operational inefficiencies and staff attitudes, particularly in initial patient interactions. Differences in participation rates between the two clinics appeared to be influenced by personnel behavior and data collection strategies. At the lower-response facility, where 59% of patients declined participation, clinic staff were reluctant to distribute the required forms and expressed concerns that the study burdened patients. As a result, research staff had to personally invite patients to participate, which likely increased refusal rates. Conversely, at the higher-response facility, administrative staff took an active role in engaging patients upon arrival, distributing forms directly, and fostering a more cooperative environment. Consequently, this clinic achieved a compliance rate of 91.4%, while the other recorded only 37.1%.

Another factor contributing to non-participation was the prevalence of literacy and language barriers.[27,28] Many patients at the lower-response facility hesitated to complete the self-report forms even when research staff offered assistance. In contrast, most individuals at the higher-response facility completed the forms with minimal support. Additionally, some patients at the lower-response clinic declined participation due to health-related concerns. Unlike the other facility, this clinic accepted walk-in patients experiencing acute medical issues, some of whom refused participation because they felt too unwell. Other commonly cited reasons for refusal included disinterest ("this doesn't concern me"), vision impairment, and assumptions that their healthcare provider already had all necessary information. These specific concerns did not arise at the higher-response facility, where staff were more proactive in encouraging participation.

The lower-response facility functions as a teaching hospital associated with a medical school, catering primarily to individuals with limited access to healthcare and more complex medical needs.[36, 37] This patient demographic, combined with institutional challenges, may have contributed to the observed differences in response rates and study participation.

Primary care physicians often struggle to differentiate between physical and mental health conditions, which creates a significant challenge in diagnosing mental disorders.[38-40] This difficulty is compounded by the tendency of some physicians to prioritize physical symptoms over psychosocial influences.[40] The presence of pain further complicates the recognition and treatment of depression.[42] Such barriers raise concerns regarding the adequacy of medical education in preparing physicians to address affective disorders and the willingness of clinicians to integrate this knowledge into practice.

Internal medicine training programs typically provide limited formal education in psychiatry.[16] According to a national survey, only 36% of graduating internal medicine residents reported feeling "very prepared" to diagnose and manage depression. This contrasts sharply with their confidence levels in managing other conditions, such as myocardial infarction (94%), diabetes (91%), hypertension (94%), asthma (93%), and upper respiratory infections (89%).[43] A substantial number of individuals exhibiting potential symptoms of mental illness remained undiagnosed by their physicians, and very few new diagnoses of mental disorders were recorded during the study period. This raises concerns about whether physicians utilized screening tools effectively or perceived them as additional burdens within their already demanding workloads.

Various psychiatric screening tools have been developed to assist primary care providers in identifying mental disorders. However, many of these instruments are extensive and time-consuming, which may make them impractical for use in busy clinical settings. For example, the PRIME-MD PHQ, a three-page questionnaire derived from DSM-IV criteria, facilitates the assessment of common psychiatric conditions, including depression, anxiety, alcohol dependence, somatoform disorders, and eating disorders.[21, 44] Similarly, the Symptom Driven Diagnostic System for Primary Care (SDDS-PCä) involves a two-step process where patients first complete a self-administered questionnaire, followed by a clinician-conducted evaluation for those with positive screenings.[22, 23, 45] Other commonly used screening instruments include the General Health Questionnaire (GHQ).[46], the Somatic Symptom Inventory (SSI-28), the Mental Health Inventories (MHI-18; MHI-5).[47], the Quick PsychoDiagnostics Panel[48], the five-minute screening interview.[18], and the Psychiatric Review of Symptoms (PROS).[49] Despite their availability, many primary care clinicians perceive these tools as cumbersome and disruptive to workflow.[16, 48]

Even brief self-report checklists designed for quick review in waiting rooms have faced resistance from

physicians, who often regard them as inconvenient. While no systematic pre- and post-intervention assessment of physician attitudes toward these tools was conducted, informal feedback from discussions with clinicians suggested that even simplified screening forms were viewed as unnecessary burdens. Recent reviews of interventions aimed at improving the identification and management of mental illnesses in primary care suggest that comprehensive, multi-faceted strategies tend to be more effective than isolated efforts.[50,51] Longer training sessions on mental health disorders, combined with immediate feedback, might enhance physician awareness; however, issues related to time constraints, session frequency, and incentives for participation remain key considerations.

A potential reason for the discrepancy between identified and formally diagnosed cases of mental illness is the possibility of false positives generated by screening tools. However, the overall rate of prior diagnoses was notably low, suggesting that underdiagnosis remains a concern. Additionally, this study was limited by its focus on a specific patient population, making it difficult to generalize findings more broadly. Despite differences in patient demographics and clinician attitudes across study sites, there is little evidence to suggest that the intervention would have been significantly more successful in other settings.

The study did not incorporate predictive metrics such as positive predictive value (PPV) or negative predictive value (NPV), which might have helped determine whether false positives or false negatives were the greater issue.[32, 33] However, the primary objective was not to validate the diagnostic precision of the screening tool but to assess whether physicians could be made more attuned to psychiatric conditions. The findings suggest that simply providing screening instruments is insufficient to increase physician awareness of mental health issues. Moreover, even highly effective and minimally demanding diagnostic innovations may face rejection from healthcare providers.

Numerous factors influence whether new clinical practices are adopted, implemented, and sustained. These factors include cost-effectiveness, integration into existing clinical workflows, acceptance within professional networks, and the presence of incentives for adoption.[52-62] Insufficient training in mental health diagnosis and treatment may contribute to physicians' reluctance to incorporate new screening methods. However, research indicates that traditional educational interventions—such as workshops and continuing education programs—often fail to significantly alter provider behavior.[63, 64]

The relevance of an innovation to a specific healthcare setting also affects its acceptance. If an intervention cannot be modified or adapted to fit the existing clinical environment, it is more likely to be rejected.[60, 65-67]

Organizational culture and communication networks play a crucial role in determining whether an innovation will be widely adopted or remain limited in scope. Influential colleagues within a professional network can accelerate the diffusion of new practices by advocating for their value.[58, 60, 68] Some institutions are more inclined than others to allocate resources for implementing innovative practices and incentivizing early adopters.[60] In some cases, collaborative research efforts between clinicians and academics may facilitate the integration of new evidence-based practices into routine care.[56, 69-71]

Research on the diffusion of innovations suggests that simpler interventions with immediate, visible benefits are more likely to be embraced by healthcare providers.[60] In contrast, complex interventions with long-term, less tangible outcomes—such as chronic disease management models or assertive community treatment programs—tend to be adopted at a slower rate.[72, 73] Clinicians may hesitate to adopt new diagnostic practices if they perceive the effort involved as disproportionate to the potential benefits or if they fear negative consequences.[53] Screening tools for mental disorders may fall into this category, as diagnoses can carry long-term implications such as stigma, patient discomfort, and uncertain clinical outcomes. Additionally, physicians may not immediately recognize the public health benefits of improved mental health diagnoses, as the impact on patient visit frequency and overall health outcomes may not be immediately evident.

To address these challenges, patient education and advocacy initiatives may be necessary to foster greater awareness, acceptance, and treatment of mental health conditions. Encouraging patients to engage in the diagnostic process could help mitigate some of the barriers to mental health screening in primary care settings.

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