Implementation Planning for Integrating Depression Screening in Diabetes Mellitus and HIV Clinics in Botswana

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Abstract

Depression is highly prevalent and, when comorbid with other medical conditions, can worsen health outcomes. Implementing routine depression screening within medical clinics can ensure that patients receive suitable treatment and improve overall health outcomes. Unfortunately, depression screening within medical settings is rare, particularly in low- and middle-income countries. This qualitative study evaluated patient and clinician perspectives on implementing depression screening within HIV and diabetes clinics in Botswana. Seven clinicians and 23 patients within these clinics were purposively selected and interviewed using a guide informed by the Consolidated Framework for Implementation Research (CFIR) to understand barriers and facilitators to depression screening in medical clinics in Botswana. Interviews were recorded, transcribed, and analyzed using NVivo. Three general themes emerged: (1) Appropriateness and Acceptability: attitudes and beliefs from clinicians and patients about whether depression screening should occur in this setting; (2) Stigma as an important barrier: the need to address the negative associations with depression to facilitate screening; and (3) Recommendations to facilitate screening including improving knowledge and awareness about depression, offering incentives to complete the screening, providing staff training, ensuring resources for treatment, the need to preserve confidentiality, and utilizing leadership endorsement. These results offer insights into how to implement depression screening within medical clinics in Botswana. These results can help design implementation strategies to increase depression screening in these clinics, which can be tested in future studies.

Keywords Depression · Medical clinics · Screening · Implementation

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Introduction

Depression is the leading cause of disability around the globe (Friedrich, 2017). Common chronic diseases such as diabetes mellitus (DM) and Human Immunodeficiency Virus (HIV) further increase the prevalence and impact of depression (Anderson et al., 2001; Eaton, 2002; Lawler et al., 2011; Lewis et al., 2012; Pouwer et al, 2010). The prevalence of depression among patients with DM in Botswana was 30% (Moshomo et al, 2022), vs. the global prevalence of 4.4% (World Health Organization, 2017). The prevalence of depression among HIV positive individuals in Botswana was reported to be 38% (Lawler et al., 2011), which is significantly higher than the estimated rates ranging between 4.5%—5.9% in the African general population (World Health Organization, 2017). Depression may result from psychosocial challenges posed by chronic conditions or from changes in lifestyle and alterations in the immune or vascular system from medical conditions (Eaton, 2002). Genetic variation, autonomic dysfunction, and hypothalamus–pituitary–adrenal axis dysregulation have also been implicated in the association between depression and these medical conditions (Chiba et al., 2000). Patients are less likely to adhere to medical treatments for a chronic condition when they also suffer from depression and patients with mental health comorbidities face a greater risk of morbidity and mortality (World Health Organization, 2003). There is a 15.6% risk of depression among individuals with chronic conditions including diabetes (Fegg et al., 2015). Setting up routine screening for depression at two well-established, high volume, specialty primary care clinics for diabetes and HIV anticipated an opportunity to detect higher rates of depression than in the general primary care patient population. Early detection of depression is critical because of the heavy burden of suffering that accompanies it.

Routine screening for depression among patients with chronic conditions is recommended for accurate diagnosis and timely management of depression (Siu et al., 2016). However, the screening and diagnosis of depression remains poor, especially in low- and middle-income countries (LMICs), representing a meaningful research-to-practice gap (Fekadu et al., 2022).

Several studies, reviewed briefly below, have focused on the implementation of brief screening tools for depression. Despite requiring less time to administer, findings of at least one systematic review suggest that the accuracy of brief depression screening scales are comparable to long depression screening instruments (Akena, 2012). The PHQ-9 has emerged as one promising method for screening for depression globally. The PHQ-9, a pragmatic (Bauer et al., 2013) depression screening tool available for use without charge,

was developed as part of the Primary Care Evaluation of Mental disorders (PRIME-MD) assessment tool (Spitzer et al., 1999) to address depression diagnostic criteria from the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (American Psychiatric Association, 2013). The PHQ-9 screens for mood, energy, sleep, pleasure, and suicidal ideation during the prior two weeks, and has been found valid and reliable for screening for depression among patients seeking help in primary care settings in Botswana (Motlhatlhedi et al., 2021) and in other African countries (Cholera et al., 2014; Pence et al., 2012).

Nevertheless, barriers to the integration of depression screening using the PHQ-9 likely exist and should be identified to guide implementation. Miller and colleagues, in a study using the PHQ-9 to screen for depression in primary care in the USA, reported that system-level (e.g., capacity to treat depression) and patient-level (e.g., inability to access care) barriers persisted (Miller, 2016). Patients may not report depression symptoms because of fear of being perceived as weak or being referred to a mental health specialist (Bell et al., 2011) and providers reported that depression screening was affected by time constraints, lack of knowledge about depression screening, misunderstanding about how to interpret screening tools, lack of knowledge about treatment options, and lack of collaborative support (Schumann, 2012). If key perceptual implementation outcomes such as acceptability, appropriateness, and feasibility are not considered, the aforementioned factors are likely to hinder implementation success (Lyon & Bruns, 2019).

This study explored the acceptability, appropriateness, feasibility, and barriers and facilitators to implementing PHQ-9 depression screening in DM and HIV clinics in Botswana. We used the Consolidated Framework for Implementation Research (CFIR) and the Expert Recommendations for Implementing Change framework (ERIC; Powell et al., 2015; Waltz et al., 2015) to guide assessment of barriers and facilitators of screening from the patient and clinician perspective to plan for subsequent efforts to implement depression screening in this context (Breimaier et al., 2015; Damschroder et al., 2009) which will allow for designing and selecting implementation strategies that are tailored to address these barriers and facilitators.

Methods

Study Design and Setting

This qualitative study used key informant interviews with health care clinicians and patients to assess the acceptability, appropriateness, feasibility, and barriers and facilitators of implementing the PHQ-9 to assess depression in DM and HIV clinics in Gaborone, Botswana. The study took place

at two facilities that provide outpatient services: 1) Bontleng clinic provides services for patients with HIV, and 2) Block 6 clinic provides services for patients with diabetes. Gaborone, a home to over 250,000 Batswana, is centrally located with an established team of psychiatric nurses and mental health practitioners who are well-placed to assist patients who screen positive and are referred for depression. Ethical clearance was ascertained from Institutional Review Boards (IRB) of the University of Botswana and the Botswana Ministry of Health. Written informed consent was ascertained from all study participants.

Study Participants

The target populations for this study were health care clinicians and patients in the selected specialized health care facilities. Eligible clinicians included head of facilities, nurses, doctors, and data clerks, who worked at least three or more days a week in the facility and had a minimum of six months working in a role that involves patients with either DM or HIV. Eligible patients were those with DM or HIV, who attended or received care from the specialized clinic for a minimum of six months. Acute patients, referred from another facility for interim management, were excluded from the study.

Recruitment

Two specialized clinics that treat DM and HIV were purposively selected for this study. Block 6 was selected as the sole clinic delivering DM care in Gaborone. Bontleng was selected due to its high HIV patient volume and minimal amounts of research being conducted to avoid increased clinic burden. Targeted recruitment efforts were used to ensure a representative sample across stakeholder groups. Purposive sample selection was used to identify the clinicians and patients who were available and willing to participate on days of data collection.

Procedures

We recruited patients and providers over a total of eight weeks late 2020–early 2021. The progress of recruitment and data collection was notably hampered by COVID-19 outbreaks that led to facility closures for extended periods of time and illness among the study team. Two trained research assistants approached clinicians and patients who met the inclusion criteria to participate in one-on-one interviews. After written informed consent was obtained, participants were asked about acceptability, appropriateness, feasibility, and barriers and facilitators to the implementation of routine depression screening and referral. All consenting participants were interviewed in a private room.

The interview guide (See Appendix A for Block 6 Interview Questions) included open- and closed-ended questions developed by the research team. Initial questions were designed to build rapport with participants by asking them to reflect on their job (clinicians) or by asking them about interest in improving the medical experience for patients (patients). Subsequent questions were aimed at eliciting discussion relevant to integration of depression screening in DM and HIV clinics. Interview questions were guided by the CFIR framework, which acknowledges the importance of contextual factors in the implementation process. Two research assistants, T.L. and G.M., conducted the interviews. The questions focused on services offered at the facility, barriers at the patient, clinician, and system level, and operational procedures and or policies that may be important to consider. Follow-up questions included screening activities, knowledge about how to recognize and manage depression, assessment of clinic workflows and patient pathways, and determining organizational readiness to integrate depression screening with patients. Interviews were audio-recorded and transcribed. Interviews lasted 45–60 min. Interviews with clinicians and patients were conducted until thematic saturation was reached. Thematic saturation is used in qualitative research to guide discontinuation of data collection and/or analysis. Saturation is reached when no new data or new themes are found on further data collection or analysis (Saunders et al., 2018).

Analysis Plan

Qualitative responses gathered through the semi-structured interviews were recorded. I.K. and K.M. prepared transcriptions, translating interview recordings from Setswana to English and uploading to NVivo 12. We identified emerging themes using inductive thematic analysis (Braun & Clark, 2006). We developed an initial set of codes using open thematic analysis. Three members of the research team (A.G.B., E.A., and K.S) independently coded responses using the initial codebook, meeting to compare readings of the data and assess reliability ($\kappa = 0.88$). Refinement of the codebook and resolution of discordances in coding occurred through team discussion. Following reliability assessment and finalization of the codebook, interviews were coded once by E.A or K.S ; 25% were double coded to assess interrater reliability ($\kappa = 0.86$).

Implementation strategies identified by stakeholders were mapped onto CFIR constructs and were confirmed by team consensus (Breimaier et al., 2015). CFIR constructs were then matched with strategies outlined by the Expert Recommendations for Implementing Change framework (ERIC; Powell et al., 2015; Waltz et al., 2015) using the CFIR-ERIC matching tool developed by Waltz et al. (2019). Given that the CFIR-ERIC matching tool does not always yield pairing

for all constructs (Waltz et al., 2019), the CFIR-ERIC pairings in this study were finalized using team consensus.

Results

A total of 30 stakeholders were interviewed and included 7 clinicians (3 from Bontleng and 4 from Block 6) and 23 patients (mean [SD] age = 50.09 [14.05] years; 5 men and 18 women; 12 from Bontleng and 11 from Block 6). Clinicians included a family physician, 2 eye nurses (one serving as acting matron), 1 principal registered nurse, 1 linkage officer, 1 community health worker (CHW) from a non-government organization, and 1 health care auxiliary (HCA) who was a TB screener. We did not collect any further demographic information on clinicians or patients. Supplementary Table 1 provides example quotes.

Appropriateness and Acceptability

A major theme reported by both clinicians and patients focused on whether the PHQ-9 depression screener should be implemented into the clinics.

Clinicians

Generally, clinicians agreed that there was a need for a depression screener such as the PHQ-9 and that patients should be told about their depression diagnosis (Theme 1.1). However, clinicians identified their own knowledge gaps, as well as patient knowledge gaps when it came to understanding depression. They stated that implementing the screener would be a new experience, as they perceived that they had never interacted with someone with depression. One staff member reported knowing the word depression but not knowing what it means. Clinicians were afraid of dealing with these issues. If they were to uncover illness, they did not feel ready to treat the patient or refer the patient for care. Depression care was beyond their job description and clinicians felt that they would need extra training (Theme 1.3).

Patients

Patients echoed the sentiment that they should be told their diagnosis of depression and that they would be grateful to receive help (Theme 1.1). Patients also reported that having a diagnosis of depression could make them feel more depressed due to dwelling on the diagnosis. Even completing the screener had the potential to make them feel depressed. Patients believed that a depression diagnosis would have a negative effect on their DM or HIV in that it could increase blood sugar or blood pressure and decrease antibody levels (Theme 1.2).

Feasibility

A second theme reported by both clinicians and patients was related to how feasible implementation of the PHQ-9 would be, with reference to multi-level barriers that could hinder implementation success.

Clinicians

Clinicians identified lack of space, time constraints, and being understaffed as barriers to implementation. They felt that privacy is necessary for conversations about depression but did not believe there was enough space to complete the screener in privacy. They were also concerned that this would increase the workload for clinics that are understaffed and strained from COVID-19 (Theme 2.1). Lastly, clinicians indicated that patients did not understand what depression is and that they might not recognize that they are depressed (Theme 2.2).

Patients

Patients acknowledged that there was a knowledge gap with regard to what depression is, what the cause is, and what treatments are available. Seventeen out of twenty-three patients coded for a knowledge gap with regards to depression with varying degrees of understanding. Some patients had seen depression in themselves and others before but did not feel they could describe or define depression well. For example, patients described seeing people withdraw from friends/family and spending more time alone but stated that someone with depression would not want to admit that they have depression to anyone. Others did not know how to distinguish between sadness and depression. They not only described a lack of understanding amongst themselves but found there to be a lack of understanding of depression within their communities. Patients described having to rely on themselves for treatment; they believed that medication was not a viable treatment for depression; or they did not know how it was treated. Several patients stated they had known someone personally or had heard anecdotally about people who had depression that went to a "mental hospital" for treatment and that they equated that with insanity (Theme 2.2).

Patients identified impatience, time constraints, and lack of space as barriers to implementing the depression screener. Patients report that clinics are overcrowded and

disorganized, which causes them to lose their patience. Lack of space for social distancing and overcrowding has caused patients much concern. Adding a new screener could add to their annoyance and cause disinterest in completing the screener (Theme 2.1).

A sub-theme that emerged from the patients with regard to feasibility was the importance of *faith in treatment and stability*. Patients referred to their faith as a source of strength in difficult situations such as the diagnosis of chronic diseases and familial problems. Some patients believed that faith was sufficient to treat mental illness (Theme 2.3).

Stigma Towards Depression as an Important Barrier

Stigma emerged as a key theme from the perspectives of both clinicians and patients.

Clinicians

The clinicians at both clinics highlighted that stigma is still prevalent when it comes to depression and other mental illness and that this may serve as a barrier to implementation of depression screening. Clinicians stated that patients would be worried about having to "open a can of worms" about a private matter and that this could hold them back from sharing information about their mental health. Clinicians also indicated that, at times, patients feel as if clinicians are trying to control them rather than help them with a problem (Theme 3.1).

Patients

Patients reported that there was personal, community, and healthcare stigma surrounding depression. Patients did not use the word stigma, but rather explained situations that indicated they were aware of stigma or that stigmatization was occurring. If they were to be diagnosed as depressed, they felt that they would be the cause of the depression and they did not want to be blamed for the diagnosis. Patients stated that the community often equated mental illness with being disturbed or insane. Patients indicated that it is not the Botswana way to share your problems and patients had concerns about others divulging their private information. Some patients also equated the stigma of HIV to the stigma of depression. There was much misinformation surrounding HIV that caused those with HIV to be ashamed of their diagnosis and patients feel there is a similar lack of understanding with regards to depression (Theme 3.1).

Suggestions for Implementation

Clinicians and patients raised several strategies to facilitate the implementation of the PHQ-9 as a tool to screen for depression in these clinics. Implementation strategies are outlined and mapped to CFIR (Breimaier et al., 2015) and ERIC (Powell et al., 2015; Waltz et al., 2015) constructs in Table 1 and are summarized briefly below.

Clinicians

Clinicians and patients identified several strategies for patient outreach. Clinicians suggested that patients should receive flyers to explain why the screener was being completed and provide background on depression. Clinicians found that incentives and t-shirts have helped increase the number of patients who come in for medical screenings and believed that this could be a helpful strategy to aid in patient outreach. Implementation of the screener in other areas such as workplaces, people's homes, or cattle posts was suggested for further patient outreach.

When asked about who would need to make the decision to implement this screener, a majority of clinicians from both clinics believed that implementation would need to be approved by the District Health Management Teams under the Ministry of Health and Wellness (MOH). One person, however, believed that implementation would not need to be approved at all by the MOH because depression screening was already standard of care at Princess Marina Hospital. Some staff at both clinics believed that approval to implement this screening would also need to come from the clinic's administrators such as the chief medical officers, head of nursing, and other management positions. One staff member from Bontleng suggested that the U.S. Agency for International Development (USAID) may also be involved because they would support the need for a depression screener.

Clinicians emphasized the need for pre-implementation training, not only to use the screener, but to learn how to confidently handle an emotionally distressed patient and how to refer them to appropriate care. Further, training would aid the staff in understanding that this screener is now part of their workload and important for patient care. Staff also believed that an increase in salary would indicate that their scope of practice had increased. If the screener is to be implemented, staff stated that they would "need emotional support."

There were differing suggestions for who should implement the screener and where and when the screener should be implemented. For example, while all clinicians believed they may have a hand in the implementation of screening, many suggested staff members at the clinics should be responsible for the screener. Clinicians at Block 6 suggested that doctors, nurses, dieticians, or healthcare assistants could

Table 1 Staff and Patient Facilitators Mapped onto CFIR Constructs and ERIC Implementation Strategies

Facilitator	CFIR Construct	ERIC implementation strategy
Patient		
Specialists	Inner setting: Compatibility	Support clinicians: Revise professional roles
House visits	Inner setting: Compatibility	Change infrastructure: Change service sites
One on one screening	Inner setting: Compatibility	Adapt and tailor to context: Tailor strategies
Show love and support	Outer setting: Patient needs and resources	Adapt and tailor to context: Promote adaptability
Education	Outer setting: Patient needs and resources	Engage consumers: Prepare patients/consumers to be active participants
Provider		
Training for staff	Inner setting: Access to knowledge and information	Train and educate stakeholders: Conduct educational meetings
Who will implement screener		
Trained Specialist	Inner setting: Compatibility	Support clinicians: Revise professional roles
Doctors, nurses, dieticians, social workers	Inner setting: Compatibility	Support clinicians: Revise professional roles
Community health workers, healthcare auxiliaries, Tirelo Sechaba participants	Inner setting: Compatibility	Support clinicians: Revise professional roles
Who will oversee implementation		
One designated staff member	Process: Formally appointed internal implementation	Develop stakeholder relationships: Identify and prepare champions
Botswana Mental Health Association	Process: External change agents	Develop stakeholder relationships: Identify and prepare champions
When/where		
Annual screening	Inner setting: Compatibility	Adapt and tailor to context: Tailor strategies
Hand out in queue	Inner setting: Compatibility	Adapt and tailor to context: Tailor strategies
One on one screening	Inner setting: Compatibility	Adapt and tailor to context: Tailor strategies
Emotional support for staff	Inner setting: Learning climate	Provide interactive assistance: Facilitation
Increase salary	Inner setting: Organizational incentives and rewards	Utilize financial strategies: Alter incentive/allowance structures
Show leadership engagement	Inner setting: Leadership engagement	Change infrastructure: Mandate change
Referral pathway clarified	Inner setting: Available resources	Develop stakeholder relationships: Promote network weaving
Pilot in local language	Intervention characteristics: Adaptability	Adapt and tailor to context: Promote adaptability
Patient outreach		
Marketing/fliers	Process: Engaging	Engage consumers: Use mass media
Patient incentives	Process: Engaging	Engage consumers: Prepare patients/consumers to be active participants
Beyond clinics	Inner setting: Compatibility	Change infrastructure: Change service sites
Who will approve implementation		
Ministry of Health and Wellness/District Health Management Teams	Outer setting: External policies and incentives	Develop stakeholder relationships: Involve executive boards
Clinic administrators and management	Outer setting: External policies and incentives	Develop stakeholder relationships: Involve executive boards
Audit records andresults	Process: Reflecting and evaluating	Use evaluative and iterative strategies: Audit and provide feedback

all be responsible for screening. Some individuals at Block 6 identified a need for a specialized position such as a social worker or psychologist for screening. Clinicians at Bontleng suggested that CHWs, HCAs and participants of Tirelo Sechaba would be best suited to implement the screener. Tirelo Sechaba is a national service program created to provide volunteer opportunities to unemployed youth in various industries such as non-governmental organization (NGOs) and government institutions (https://www.gov.bw/employment-apprentice/botswana-national-service-programme-tirelo-sechaba). Stakeholders at both clinics believed that referrals would still need to come from doctors and/or

nurse practitioners. Clinicians suggested that having a local doctor who could speak a local language would increase a patient's understanding of the screener. In addition to this, clinicians believed that piloting the screener in Setswana would be beneficial for patient understanding. Translation to Setswana would be beneficial for patient understanding since Setswana is the national language and spoken by the majority of the population.

Clinicians further suggested that completing the screener while in queue would save patients and staff time, while others suggested that it was necessary for patients to complete the screener one on one in a consultation room for confidentiality. Others suggested that the screener should be completed annually, similar to the eye exams tests (Theme 4.1).

When asked about who should oversee the implementation of the screener, maintenance of the process, and the generating of reports with regards to its use at their clinic, most clinicians believed one staff member should be in charge but did not identify a specific team member. One staff member at Bontleng suggested that the Botswana Mental Health Association should oversee the implementation of the depression screener at clinics.

Lastly, there were concerns about what happens to a patient once they are identified as having depression. Clinicians would like to see a clear referral pathway from start to finish, ensuring that their patients are receiving appropriate care. They suggested informing Princess Marina Hospital's psychiatric department about the screener and ensuring that there was a way to quickly transport patients to care if needed. If the screener were implemented, clinicians would like to have regular auditing and monitoring to identify challenges that clinics are facing with implementation and to ensure that patients are being appropriately identified and treated.

Patients

Patients acknowledged their knowledge gaps with regard to depression and were interested in learning more about the condition and why treatment is important through an event similar to World AIDS Day. Patients asked that the clinicians show love, support and understanding when implementing the screener as they often feel emotionally overwhelmed. Patients agreed that the screener should be completed one on one with a clinician and echoed the idea of using a trained specialist. They indicated that they liked the system of coming to a specialized clinic for an issue (Theme 4.1). Patients also acknowledged that the screener would have a greater impact if implemented outside of the clinics.

Discussion

This is the first published study to ascertain and report feedback from key stakeholders – clinicians and patients – about the implementation of a depression screening tool within HIV and diabetes clinics in Botswana. This will allow for thoughtful selection and tailoring of implementation strategies to address how best to implement depression screening within this particular context. Depression is highly prevalent and a strong contributor to poor health outcomes in these populations, yet methods for integrating a screening procedure in these settings are under-explored, particularly in LMICs. The major findings from this study indicate that these key stakeholders consider the integration of a depression screener into these clinics as acceptable, appropriate, and feasible and offer suggestions for how to do so. However, these findings also point to potential barriers that need to be addressed to facilitate successful implementation of screening, including stigma associated with depression, the availability of treatments, and clinician training and patient awareness. These findings are framed within both the CFIR and ERIC taxonomy to help translate the results into implementation strategies that can be tested to promote depression screening.

Both groups of stakeholders expressed that the proposed evidence-based practice – integrating depression screening into these clinics – is acceptable, appropriate, and feasible. This suggests that the intervention characteristics are amenable to the context. Overall, there was general agreement that depression is common, relevant to the patient's well-being, and reasonable to address in these clinical settings. However, both clinicians and patients underscored that both stakeholder groups will need to be educated about depression: what it is, how to assess it, and, importantly, how to treat it. This feedback that knowledge is a major barrier reflects the need to use implementation strategies such as *conduct educational meetings/ access to knowledge and information* (Breimaier et al., 2015; Powell et al., 2015; Waltz et al., 2015) and has been cited by other similar studies conducted in Africa (Kemp et al., 2021). Enumerating referral options for clinicians and explaining treatment options to patients was strongly emphasized across the stakeholder groups.

The second major theme that emerged from this study concerned feasibility. While both stakeholders agreed that integrating a screener for depression within these medical clinics was feasible, they highlighted issues that would need to be addressed to achieve this goal, suggesting the need for careful attention to intervention and setting fit. Clinicians emphasized the need to determine when and where the assessments would be conducted, and by whom, and if this would influence their workload. Patients expressed concern

about ensuring that assessment procedures would preserve confidentiality and privacy and mentioned the importance of faith in determining the need for assessments and the management of depressive symptoms. These determinants support the need to consider *tailor strategies/compatibility* and *revise professional roles/compatibility* as implementation strategies in this context (Powell et al., 2015; Waltz et al., 2015). Further, given the potential importance of faith in managing depression expressed by patients, as seen in past studies among patients with HIV in Africa (Steglitz et al., 2012), screening approaches may need to be adapted and tailored to consider this important contextual factor in depression screening protocols. Studies in Africa support the use of faith-based organizations as sources of support for disseminating new resources and combatting stigma when they are properly informed and educated (Otolok-Tanga et al., 2007).

A third notable theme that emerged from both stakeholder groups was the need to address outer setting related stigma associated with depression if there is to be successful implementation of depression screening within these clinics. Both stakeholder groups remarked that many people in their community associate depression with profound mental illness, which has been reported previously (Zhang et al., 2019). Patients drew a connection between the pervasive stigma towards HIV that exists in their communities and the perceived stigma towards mental illness, potentially from misinformation regarding both conditions. Previous studies have found that HIV-related stigma is a serious concern in Botswana and is a salient risk factor for depression among HIV patients (Gupta et al., 2010). Another study of beliefs about mental illness among HIV patients in Botswana underscored prevalent stigmatized attitudes towards depression including that mental illness increases risk for HIV and poor treatment outcomes (Becker et al., 2019). Stigmatizing beliefs were reflected in the present study, which increases concern for this potential important barrier to implementation.

These results underscore the need to adapt and tailor methods so they are devised to dispel social norms concerning mental health that can impede assessment and disclosure. Implementation methods that incorporate anti-stigma objectives and resources may encourage help-seeking and prevent the propagation of mental illness stigma in the region. *Preparing patients and consumers to be active participants, considering patient needs and resources,* and *conducting educational meetings and increasing access to knowledge and information* around mental health stigma are likely essential for successful implementation in this context (Powell et al., 2015; Waltz et al., 2015). Culturally relevant curricula and practically applicable educational tools such as case studies have been found to be particularly powerful for educating students in Botswana and increasing sensitivity towards mental illness (Monteiro, 2014).

Finally, in response to prompts about barriers and facilitators, the stakeholder groups in this study offered a range of specific suggestions to facilitate implementation of a screening tool for depression within these medical clinics. In addition to emphasizing the need for educating patients (e.g., about the need for depression screening) and clinicians (e.g., about how to conduct the assessment and where to refer patients if needed), the stakeholder groups advised that financial incentives, leadership endorsements, and pilot testing the procedures and monitoring progress could be helpful. Unfortunately, stakeholders did not elaborate on the range of information they believe patients need, so future work may be needed to identify specific content within this strategy. These suggestions are consistent with implementation strategies outlined by the ERIC taxonomy and CFIR constructs, including *altering incentive and allowance structures and organizational incentives/rewards*, *mandating change and leadership engagement*, *promoting adaptability*, and using *audit and feedback* and *reflecting and evaluating* (Breimaier et al., 2015; Powell et al., 2015; Waltz et al., 2015).

These results should be interpreted in the context of relevant study limitations. The sample was relatively small and recruited from two clinics. Our recruitment was hampered by the COVID-19 pandemic, and the themes that emerged may not be representative of the broader community of patients and providers. In addition, our sample did not allow us to examine variation in themes between different provider types or different patient groups. This study also relied on respondents to interpret the term "mental illness" based on local colloquial use. Becker et al. (2019) acknowledged this limitation, cautioning against a presumption that depression was categorized with "mental illness" since it may be understood differently.

Nevertheless, this study represents an important step towards the development of implementation strategies that may be used to help facilitate depression screening. Next steps could involve sharing results of patient and provider interviews with clinic HCWs. Using techniques from partnered research approaches, facilitated discussions with HCWs could derive a commonly agreed, patient care pathway map to serve as a basis for HCW discussions of where and how best to implement screening, data systems to support screening and management, and other implementation design concerns. HCWs could then be prepared for screening, through pre-implementation workshops around depression, its management (including when to treat and when to refer in our health system), provider roles and responsibilities, and training in delivery of patient education to encourage screening uptake. Initial, short-term piloting (2 weeks) could occur, followed by consultations with implementing HCWs to gather feedback and suggestions for fine-tuning of the screening strategy. Incorporating these inputs in further

refinement, could follow with a longer pilot implementation before again consulting implementing HCWs for their perspectives and recommendations (Campbell et al., 1998).

Future research to enhance depression screening implementation could include identifying evidence-based strategies to support health providers to feel competent in caring for patients with mental illness; and developing and testing strategies to address depression stigma among patients to encourage receptiveness to screening.

Declarations

Competing interest Dr. Beidas receives royalties from Oxford University Press, consulting fees from United Behavioral Health and OptumLabs, and serves on the advisory boards for Optum Behavioral Health, AIM Youth Mental Health Foundation, and the Klingenstein Third Generation Foundation outside of the submitted work.

Ethical Approval and Consent to Participate Ethical clearance was ascertained from Institutional Review Boards (IRB) of the University of Botswana and the Botswana Ministry of Health Botswana. Written informed consent was ascertained from all study participants.

Consent to Publication Not applicable.

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