Improving the Detection of Depressive Disorder in Sri Lanka

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Abstract: *Background*: Primary care is often the first point of contact that patients with mental illness have with the healthcare system. Numerous tools have been developed for detecting depression in primary care. However, utilizing these tools within the time-limited primary care setting remains a challenge. Screening questionnaires that are just as effective as more comprehensive diagnostic tools may be beneficial in improving depression detection rates. This study aims to develop a culturally-adapted screening questionnaire and determine its sensitivity and specificity for diagnosing depression in a primary care clinic in Ragama, Sri Lanka.

Methods: This was a cross-sectional study involving three steps; 1) development of the 2-Question Questionnaire (2-QQ), 2) verbal administration of 2-QQ to patients via their primary care physician and 3) completion of the Peridenia Depression Scale (PDS), a validated diagnostic tool for depression, by the patient after their primary care consultation. Correlations between the 2-QQ and PDS were subsequently examined to determine sensitivity and specificity of the 2-QQ.

Results: A score of ≥1 on the 2-QQ was most sensitive but least specific; this threshold level correctly identifies depressed patients, but also inaccurately captures patients who are not depressed. A score of 6 was most specific but least sensitive; this threshold level correctly identifies patients without depression, but is not very effective at capturing patients with depression.

Conclusion: In the context of primary care, it may be worthwhile setting the 2-QQ at a lower threshold for positivity (such as ≥1) to ensure that depressed patients are well-accounted for.

Keywords: Depressive Disorder, Depression, Primary Care, Screening, Clinical Diagnosis.

1. INTRODUCTION

1.1. Cross-Cultural Considerations for the Detection of Depression

Depression affects more than 264 million people worldwide, and the global burden of depression and other mental health conditions is continuing to rise annually [1]. Despite the high global prevalence and incidence of depression, clinical expressions of depressive disorders can vary considerably across different ethnic and cultural contexts. The manner in which a patient presents with depression impacts both its clinical detection and diagnosis, as well as suitable treatment options, response to therapy, and overall wellbeing of the patient [2]. For instance, previous studies have suggested that patients from non-Western and developing countries were more likely to deny psychological symptoms compared to Western and developed countries. Additionally, numerous studies across South and East Asian contexts suggest increased somatisation of underlying depressive disorders (rather than the expression of psychological distress) compared to Western contexts [3, 4]. These difference in presentation also lead to differences in care-seeking patterns for depression, with previous studies showing patients from Asian, Latino and African backgrounds being less likely to utilize voluntary mental health services and treatment, compared to patients from Western, Caucasian backgrounds [5].

Numerous explanations have been stipulated for the differences in depression expression between patients from non-Western versus Western countries. One leading hypothesis is greater stigmatization of mental illness in non-Western contexts. In various non-

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Western cultures, it is commonly believed that mental illness is attributable to weakness in willpower, to be overcome by self-control and avoidance of morbid thoughts. As such, seeking external help from formal healthcare institutions can be considered "shameful" [6]. In South Asian immigrant populations, depression is largely described as situational responses to social and moral problems, rather than a disorder with a biomedical basis. As such, it was found that self-management strategies (diet, exercise, distraction) as treatment for depression were prioritized above formal medical care seeking [5]. Another hypothesis is that different cultures develop unique patterns of symptoms related to depression that is different from the generalized symptoms of psychological distress common in Western cultures. As such, culture-bound syndromes develop, in which the cultural expression of illnesses, like depression, is characteristically distinguishable from that of other cultures, rather than a universal form of psychopathology [7]. For example, the "dhat syndrome" is a culture-bound syndrome prevalent in the Indian subcontinent, that includes symptoms of weakness, fatigue, sexual dysfunction and loss of virility; many symptoms of this syndrome overlap with Western diagnostic features of depression [8]. Relatedly, somatization of depression, in which underlying depressive conditions manifest as physical symptoms reported by patients (e.g. pain, insomnia, dizziness, etc.), has been found to be more common in many Chinese and other East Asian contexts, compared to the Western experience [9].

The Sri Lankan population serves as a unique context for the study of detecting depression. Previous studies have demonstrated a high rate of suicide in Sri Lanka following a prolonged civil war (40 suicides per 100,000 annually, compared to 8 per 100,000 annually in the United States) [10]. Despite this, Sri Lanka has been shown to have a lower prevalence of depression compared to Western countries. It is hypothesized that this discordance between low depression rates and high suicidality may be due to relatively low cultural appropriateness for the assessment, detection and diagnosis of depression [11]. There is an extremely limited research evidence on the detection of depression (particularly in primary care settings), as well as the symptomology of depression in the Sri Lankan context.

1.2. Role of Primary Care in Depression Detection

In most health systems across the globe, primary care physicians play an essential role in the initial identification, diagnosis and treatment of both somatic and psychological disorders. In recent decades, there has been an increasing emphasis on mental health in a primary care setting. This rise follows current trends of global mental illness morbidity, with estimates indicating that 50% of the population experiences at least one mental disorder in their lifetime [12]. Primary health services are often the first, and sometimes the only, point of contact that patients with mental illness have with the healthcare system. Oftentimes, a visit to a general practitioner (GP) regarding mental health carries less stigma than a visit to a mental health specialist, since GPs have more interpersonal and longitudinal relationships with their patients, as well as a deeper understanding of their psychosocial context [12-14]. A cohort study in the United Kingdom found that 31% of people with a diagnosis of severe mental illness were only seen in primary care over a one-year period [15]. Despite the potential for primary care to service those with underlying mental illness, psychiatric morbidities still remain largely unidentified and underdiagnosed.

1.3. Existing Information on Depression Detection in Primary Care

Failure to detect depression in primary care has been a significant healthcare issue. Although most episodes of depression are managed by primary care, a large number of depression episodes still remain undetected and undiagnosed during consultation [16]. One of the most significant barriers to improving detection of depression is the stigmatization of care-seeking for those experiencing mental distress. Stigma is often the result of a lack of understanding about mental disorders and their diagnosis and treatment, as well as the absence of physical manifestations that render mental illnesses as "legitimate" disorders, akin to disorders that present with physical or somatic symptoms. The stigmatization of mental illness has been shown to influence the manner in which patients with psychiatric disorders present themselves in primary care settings. In an international study conducted by the World Health Organization on the relationship between somatic symptoms and depression, it was found that of the 1146 patients across 14 countries and 5 continents included in the study who met the criteria for depression, 69% reported only somatic symptoms as their chief complaint upon presentation at the primary health center. Although there is substantial variation in many countries, ranging from 45 to 95% reporting only somatic symptoms, it is evident that regardless of geographical context, underlying mental illness can be overlooked in those

presenting with somatic symptoms and therefore left untreated [17, 18].

Several interventions have been explored to improve the detection of depression in primary care. One method includes improving consultation skills among physicians so they may elicit more information about the mental health of their patients. Although a physician's communication skills are critical for their interactions with patients, improving these skills has only led to a modest increase in depression detection rates [19]. This is because most primary care consultations are initiated by the patient; the information provided during consultations is largely dependent on what the patient chooses to share. Patients may opt to focus on physical signs and symptoms, or "somaticize" underlying psychiatric morbidities, making it more difficult to identify mental illness [6]. As such, interventions that allow physicians to initiate the discussion about mental illness may prove to be more effective in detecting disorders such as depression. A number of tools have been developed and validated to detect depression in the context of primary care [20]. However, the challenge remains of applying these tools within the limited timeframe for consultation in a primary care setting, where other comorbidities and health issues must also be addressed. Therefore, short questionnaires that screen for depression and that are as effective as more comprehensive diagnostic tools may be beneficial in improving depression detection rates among patients visiting a primary care setting.

1.4. Existing Tools for Depression Detection

There are a range of tools currently available for the diagnosis of depression in clinical practice. The Beck Depression Inventory (BDI), Centre for Epidemiological Studies Depression Scale (CES-D), Depression Anxiety and Stress Scale (DASS), Depression Self-Rating Scale (DSRS), Edinburgh Postnatal Depression Scale (EPDS), Geriatric Depression Scale (GDS-15), Patient Health Questionnaire-9 (PHQ-9), and the Peradeniya Depression Scale (PDS) are tools currently available for the diagnosis of depression in Sri Lanka [21]. Amongst the existing tools, the PDS is the only culturally validated tool which takes into account cultural expressions and idioms of depression [20].

The PDS is a 25-item questionnaire written in Sinhalese which includes questions related to the somatic, biological, cognitive and behavioral manifestations of the symptoms of depression in the Sri Lankan population [20]. It uses the internationally accepted criteria for depression that have been carefully translated into culturally appropriate sentences. The PDS statements use simple language and colloquial terms which ask for a yes/no response only. A score of 10/25 or higher is used to diagnose depression with a sensitivity and specificity of 88.5% and 85% respectively, thus making the PDS a highly accurate diagnostic tool [20]. In addition, the questionnaire is relatively easy to use and does not require any special training for administration [22]. The PDS can be used in primary care settings to screen for depression. However, the time required to complete the questionnaire for each patient may deter primary care physicians from utilizing the PDS during consultations. Furthermore, general and family practitioners have limited time to conduct detailed interviews to identify underlying depressive disorders. This has been a challenge in Western countries that has prompted the development of shorter depression questionnaires to be used in primary care settings.

The Patient Health Questionnaire (PHQ)-2 is an ultra-short screening instrument designed to rule out, but not diagnose, depression. The PHQ-2 involves two simple questions: "Over the past two weeks, how often have you been bothered by 1) little interest or pleasure in doing things? 2) feeling down, depressed or hopeless?". In previous studies, it has been found to be as effective as longer screening tools, such as the BDI, and to be 97% sensitive and 67% specific in adult populations [22].

In this study, we aim to develop and determine the sensitivity and specificity of a short, 2-Question Questionnaire (2-QQ) to screen for depression in the Sri Lankan population. The 2-QQ will be culturally adapted to the local context of a suburban primary care clinic in Ragama, Sri Lanka order to increase the detection of depression in this population.

2. MATERIALS AND METHODS

2.1. Setting and Patient Population

The study was conducted at the University of Kelaniya Family Medicine Clinic in Ragama, Sri Lanka. The majority of the patients were from Ragama and neighboring cities in the Gampaha district. The clinic operated from 8am-11am on weekdays and consisted of two-three family physicians each day. On average, the clinic was visited by around 20 patients each day, most of whom were females with an average age of 51.

The majority of patients were Sinhalese speaking and from a lower-middle socioeconomic status.

2.2. Inclusion and Exclusion Criteria

Patients above the age of 18 who were able to provide informed consent were included in our study. Those already diagnosed with depression or follow-up patients who had previously filled out the questionnaires, who were staff members at the clinic, who did not complete all components of the study, and those who were unable to provide consent due to mental disabilities or cognitive impairments were excluded from the study.

Table 1: Patient Demographic Characteristics

	n	% (rounded)
Total Patients	180	100
Gender		
Male	41	23
Female	128	71
Unknown	11	6
Marriage Status		
Married	142	79
Never Married	15	8
Widowed	12	7
Divorced/Separated	3	2
Unknown	8	4
Number of Children		
0	14	8
1	31	17
2	51	28
3	40	22
4	9	5
5+	10	6
Unknown	25	14
Average Age	51.12 years	
Age Distribution		
0-19	5	3
20-29	14	8
30-39	20	11
40-49	29	16
50-59	47	26
60-69	39	22
70-79	13	7
80+	3	2
Unknown	10	6

2.3. Study Design

This was a cross-sectional sensitivity and specificity analysis involving three steps; 1) development of the 2-QQ 2) Routine administration of the 2-QQ by primary care physicians to patients during consultation, 3) Completion of the PDS by patients, a self-administered diagnostic tool for depression, after their consultation with the primary care physician. Between steps two and three, patients were given an information package containing the details of the study, a consent form, a demographic questionnaire, and the PDS. Additionally, patients were asked to self-report their previous diagnosed illnesses, as well as current chief complain on presentation to the clinic in an intake form. The package was described by study researchers who were blinded to the 2-QQ results from the initial screen. Only those patients who provided informed consent were asked to complete the PDS. Those patients who did not provide consent were excluded from the study and their results from step two were discarded by their family physicians.

Development of the 2-Question Questionnaire (2-QQ)

The development of the 2-QQ involved consultations and feedback from four psychiatrists and two family physicians at the University of Kelaniya, Faculty of Medicine.

The 2-QQ was developed from the PHQ-2 screener for depression. Similar to the PHQ-2, the purpose of the 2-QQ is to serve as an initial screen for depression in a primary care setting. The 2-QQ is not to be used for the purpose of diagnosing depression or for monitoring the severity of depressive symptoms. Therefore, patients who screen positive with the 2-QQ should be further evaluated with an established depression diagnostic tool that has been locally validated, such as the PDS.

The 2-QQ is not a direct translation of the PHQ-2. Rather, it differs from the PHQ-2 because it consists of culturally adapted phrases and colloquial terms used in the Sri Lankan population. Otherwise, the two questions included in the screen are similar to that of the PHQ-2, and asks for the frequency (within the last two weeks) of 1) anhedonia and 2) depressed mood. A score of 0 corresponds to “not at all”, 1 to “several days”, 2 to “more than half the days”, and 3 to “feeling down, nearly every day”.

Administration of the 2-QQ

Patients were asked two questions by their family physician. Each question was scored by the physician on a scale of 0 to 3 (corresponding to the previously mentioned phrases), ranging from 0=no symptoms to 3=very symptomatic. After completing the two questions, the patients received a score out of 6.

Administration of the PDS

Following completion of the 2-QQ, patients were directed to researchers who were blinded to the results of the 2-QQ. The researchers explained the details of the study to the patients and provided them with a written package. The package included study details, a consent form, the PDS, and a demographic questionnaire.

The PDS was self-administered and consisted of 25 questions related to the symptomatic and cultural presentation of depression. For each positive response, patients received one point for a total score out of 25. Patients who received a score of 10 or greater on the PDS tested positive for depression.

2.4. Analysis

Following data collection, the *true positive* value was determined as the number of participants who screened positive on both the 2-QQ and on the PDS, and the *false positive* value was determined as the number of participants who screened positive on the 2-QQ and negative on the PDS. The *true negative* value was determined as the number of participants who screened negative on both the 2-QQ and PDS, while the *false negative* value was determined as the number of participants who screened negative on the 2-QQ and positive on the PDS. These values were determined for each level of the 2-QQ; where the positive threshold score was set to a score of ≥1, ≥2, ≥3, ≥4, ≥5 and 6. This was done to determine which level of the 2-QQ would yield the highest sensitivity and specificity for predicting depression. The sensitivity and specificity values were subsequently calculated for each level. This method of analysis has been previously used to validate the screening performance of the Geriatric Depression Scale (GDS) in an elderly home care population [23].

2.5. Ethics Approval

The ethical aspects of this research project have been approved by the Ethics Committee, Faculty of Medicine, University of Kelaniya, Ragama, Sri Lanka.

3. RESULTS

The responses gathered from the 2-QQ and PDS questionnaires were recorded. In order to validate the 2-QQ screen, we did not determine the threshold of a positive score prior to the study. Instead, the threshold for a positive score will be subsequently derived, based on the sensitivity and specificity found for each level of the 2-QQ screen (e.g. a score of ≥1, a score of ≥2, etc.).

Table 2: Sensitivity and Specificity for each Level of the 2-QQ Screen

	Positive Score Threshold					
	≥1	**≥2**	**≥3**	**≥4**	**≥5**	**6**
Total Positive	94	66	39	30	19	16
False Positive	40	23	9	5	3	3
False Negative	5	16	29	34	43	46
True Positive	54	43	30	25	16	13
True Negative	80	98	112	116	119	118
Sensitivity	0.92	0.73	0.51	0.42	0.27	0.22
Specificity	0.67	0.81	0.93	0.96	0.98	0.98

Results from analysis show that a score of ≥1 on the 2-QQ was most sensitive but the least specific, meaning that the 2-QQ screen captured nearly all patients with depression, but also yielded the most number of false positives. Thus, setting the threshold at this level is effective for identifying depressed patients, but also provides a positive result for a number of patients who are not depressed. Conversely, a score of 6 on the 2-QQ was most specific but the least sensitive. Setting the threshold at this level effectively identifies patients without depression, but does not adequately capture patients with depression.

Additionally, data was routinely collected on previously diagnosed illnesses and presenting chief complaint for each patient who consented to completing step three of the study. Although beyond the scope of this current study, this data is useful for future analysis of potential association between medical comorbidities and newly-diagnosed clinical depression, and association between presenting chief complain and newly-diagnosed clinical depression.

Table 3: Previously Diagnosed Illnesses and Presenting Chief Complaints of Patient Participants

	n
Previously Diagnosed Illnesses	
Diabetes	10
Hypertension	9
Joint Pain/Arthritis	6
Dyslipidemia	6
Gastritis	4
Chronic Headache	4
Asthma	4
Mental Stress	2
Thyroid	2
Total	47
Presenting Chief Complaints	
Limb Pain/Numbness/Swelling	13
Follow Up/Check Up	8
Headache	7
Joint Pain	6
Shortness of Breath/Asthma	6
Cough	5
Body/Back Pain	5
Dermatologic	4
Abdominal Pain	4
Diabetes	3
Cold Symptoms	3
Fever	3
Syncope	3
Chest Pain	3
Hypertension	3
Total	76

5. DISCUSSION

In the context of primary care, where diagnoses for depression are commonly missed entirely, it may be worthwhile setting the 2-QQ screen at a lower threshold for positivity (such as a score of ≥1), to generate a high test sensitivity, thereby ensuring that depressed patients are accounted for, as the benefits of identifying a depressed patient (i.e. referral to psychiatry, treatment of underlying depression) may outweigh the harms of a non-depressed patient yielding a positive score on the 2-QQ screen (i.e. anxiety over misdiagnosis, unnecessary treatment).

The recommended score of ≥1 as a threshold for positivity is notably lower than the previously established score of ≥3 as the threshold for a true positive on the PHQ-2. This suggests that patients may be reluctant to disclose symptoms when discussing depressive symptoms with their doctor. Correspondingly, patients may be more likely to acknowledge symptoms of depression while filling out the PDS on their own. This may result from numerous barriers to disclosure of depressive symptoms. Previous research from the United States has investigated the association of depression-related stigma on health service seeking and utilization in the context of primary care. A study of 1187 depressed patients across 46 primary care clinics found that 67% reported that depression-related stigma had a negative impact on employment, 59% on health insurance and 24% on friendships [24]. In light of such stigmatization related to depression, patients may be reluctant to disclose the occurrence of depressive symptoms, in fear of having to face a formal diagnosis and subsequent treatment. Another supportive study from California found that depressive symptoms are underreported by patients in primary care. Among 1054 adult patients, 43% reported one or more reasons for nondisclosure of depressive symptoms, due to concern of being prescribed antidepressants, stigmatization, and the perception that mental health falls outside of the scope of primary care [25].

Relatedly, the somatization of mental illness symptoms may contribute to lower rates of depressive symptom disclosure to a physician. The expression of physical symptoms in the absence of a medically explained physical illness is referred to as somatization. These physical manifestations may be the result of suppressed or denied psychosocial distress due to a number of factors, including stigma associated with disclosing psychiatric disorders, lack of

understanding of psychiatric disorders, or inability to appropriately emote or express psychiatric symptoms due to sociocultural factors [26]. In depressed patients at a psychiatry clinic in central Sri Lanka, 31.2% of individuals presented predominantly with somatic symptoms. Of this sample, the most common somatic complaints were headaches (44.4%), burning sensations in the body (17.7%), body and back ache (28.8%) and chest pain (13.3%). Additionally, only 10.4% of patients were found to have severe depression with psychotic features at time of presentation [27]. In our study, common somatic symptoms were reported as chief complaints on presentation by patients (Table **3**). For the purposes of this primary study, it has not been ascertained if these symptoms are associated with a presentation of any underlying psychiatric morbidity. However, this presents an opportunity for future research using this data, such as factor analysis and development of a culturally-validated symptom profile, to establish a more robust understanding of the clinical presentation of depression in the Sri Lankan context.

Another potential factor impacting our results were the application of user charges to the family medicine clinic part way through the study period. A fee of 100 Sri Lankan rupees was applied upon the opening of a new wing in the family medicine clinic about two weeks into our study period. User fees can have a substantial impact on healthcare uptake. Indeed, a systematic review conducted by the World Health Organization found that removing or reducing user charges was found to have an abrupt increase in health service utilization [28]. In contrast, when user fees were increased or introduced, a drop in utilization of public services was noted in Lesotho, while demand became increasingly sensitive to price in Gabon [29]. These findings are notable, since the introduction of user charges at our study site may have contributed to fewer patient visits and subsequently a smaller sample size. Additionally, the introduction of user charges may have resulted in a skewed sample, in which only patients who were able to afford the price of a consultation were recruited into the study. These socioeconomic factors may have also been related to the incidence of depression amongst the patient sample. Numerous studies have investigated the association between wealth and psychiatric morbidity, although results are mixed [30].

Furthermore, this study aimed to validate the use of the 2-QQ as a rapid screening tool for use in clinical practice, to be initiated and administered by the primary care clinician. However, previous research has suggested that the clinical assessment of depression should involve both self-reported questionnaires and clinician-rated scales for diagnostic purposes. There is some debate over which element should be considered as a primary form of assessment. Self-reported questionnaires have been found to be more predictive of outcomes on clinician-rated scales than clinician-rated scales on the outcomes of self-report measures. Given the time constraints of physician appointments, universal use of clinician-rated scales may also be impractical. However, clinician-rated scales have also been shown to contain unique, nonredundant information that may be missed in self-reported measures, and is prognostically relevant [31]. Thus, future investigation exploring benefits of implementing both modalities into the clinical assessment of depression may be a useful avenue of research.

The development of the 2-QQ screening tool in our study was developed based on the feedback of psychiatrists practicing in our study setting, as well as the pre-existing PHQ-2 questionnaire. It remains uncertain whether the symptom profile captured from this culturally-adapted screening tool corresponds to subsequent remission from treatment of the depressive disorder. Previous research has demonstrated that certain symptom profiles are predictive of varying levels of therapeutic remission following appropriate treatment (e.g. antidepressants). For example, a study from Barcelona of six predefined psychopathological characteristics of major depressive disorder (anguish/restlessness, reduced emotional reactivity, reduced attention, reduced motor response, feelings of worthlessness, and mood characteristics) were found to correctly classify 88.1% of the sample as remitter/non-remitter with a sensitivity of 0.77 and specificity of 0.96 [32]. This knowledge provides another avenue of future study evaluating the predictive value of the data from the 2-QQ screening tool in predicting treatment response amongst the suburban Sri Lankan population of interest.

5.1. Strengths of Study

The main strength of this study is the potential benefit of validating a novel tool for the detection of depression in primary care. Given the statistically significant moderate association between a positive 2-QQ score and a positive PDS score, the 2-QQ can be regarded as a moderate predictor for depression and as an adequate tool for preliminary screening in primary care patients, many of whom would otherwise

not be diagnosed. Since the 2-QQ test is incredibly short, it is also conducive to primary care settings where consultation time is limited. Furthermore, the questionnaire items are verbally asked by the physician and so patient literacy is not a barrier to screening. The 2-QQ can potentially be applied to other sites in Sri Lanka and beyond. Ultimately, this screening tool can help close the existing diagnostic gap, thereby linking more patients with depression to the treatment they require.

Finally, the primary care setting in which our study took place served as an optimal point of identification and intervention for depression. Family medicine clinics allow for longitudinal care, in which patients develop strong therapeutic relationships with the same team of doctors over multiple visits. This setting is conducive to enhanced information sharing from the patient and provides a more comfortable environment to disclose sensitive information, such as that about mental health status. This can result in improved detection rates, as compared to other settings such as outpatient and emergency departments in hospitals. Additionally, patients with depression can follow up with physicians they already know and trust.

5.2. Limitations of Study

Despite our best efforts at optimizing the study design, some limitations were apparent in the design and rollout of our study. This study aimed to focus on the initial detection of depression using a rapid clinical screening tool, corroborated with the more comprehensive PDS questionnaire. However, we recognize that with both the 2-QQ and PDS questionnaires, symptoms identified for the detection and diagnosis of depression were limited to the symptoms included in these modalities. The symptoms of depression are clinically diverse and complex, and our chosen tools may not fully reflect the full spectrum of depressive disorder symptomology that may exist in our study population. As mentioned preciously, supplemental data on self-reported symptoms and factor analysis can help determine an even more comprehensive and culturally-adapted understanding of relevant symptoms for the diagnosis of depression in Sri Lanka, and can subsequently aid in the creation of more accurate screening and diagnostic tools.

Various limitations regarding the rollout of the study also exist. First, we relied on the help of translators to help facilitate the completion of questionnaires by the patients, including local medical students and clinical staff. On occasion, translators would help complete the questionnaires for patients who were illiterate, visually impaired, or could not physically complete the survey for other reasons. Similarly, family members of patients occasionally helped some patients complete the questionnaires. This may have impacted the truthfulness of the responses. Since many of the questions in the PDS are sensitive, patients may not disclose true responses to their facilitators for fear of judgment due to the stigmatization of depression. Additionally, the 2-QQ was developed in Sinhala, the most commonly spoken language in Ragama. However, Sinhala may not be the primary language of certain patients, resulting in self-exclusion from the study or inaccurate completion of the survey. Another limitation was the operating hours of the clinic. Since the clinic hours were from 8am to 11am on weekdays only, it provided an additional barrier of access to the working patient population. Thus, our participant demographics were mainly non-working individuals (particularly, stay-at-home wives/mothers) who were able to come to the clinic in the morning during weekdays. However, previous studies have found higher prevalence of depression amongst middle aged women with increasing depression rates until the age of 55 [33]. Therefore, the sample recruited in this study may represent a population that is more susceptible to depression.

Additionally, the clinic primarily serves patients from the low-middle socioeconomic class and so the data obtained is not representative of the broader population. The clinic also obtains its patient population primarily through word-of-mouth referral, which likely results in the recruitment of additional patients from the same neighborhoods and socioeconomic class. In Sri Lanka, those from a high socioeconomic status are more likely to seek medical aid from private healthcare sectors and therefore, we were unable to collect data regarding depressive symptoms in this population [34].

6. CONCLUSION

As previously stated, the 2-QQ can serve as a screening tool in various Sri Lankan primary care settings in order to increase detection of depression. Our study focused on a specific subset of the Sri Lankan population due to the geographic location of the clinic and the limited clinic hours. Therefore, we would recommend that future studies test the validity of the 2-QQ in a varied patient population, including private clinics and those with longer hours, to capture individuals from high socioeconomic status and the working population.

In addition, we would recommend that future studies translate and validate the 2-QQ in Tamil in order to capture the Tamil-speaking population found in Sri Lanka and in other parts of the world, including Toronto, Canada.

Finally, we recommend that primary care physicians have more frequent conversations about mental illness in order to decrease associated stigma and promote earlier detection of depression.

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CONFLICTS OF INTEREST

No conflicts of interest to disclose.

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