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Review articles

Understanding the journey of patients with depression in Brazil: A systematic review

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HIGHLIGHTS

- Depression in Brazil.
- Patient journey stages.
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ABSTRACT

Despite having an organized mental health law and policy, a majority of patients with depression remain underreported and undertreated in Brazil. The study aimed to quantitatively map and identify the deficiencies in patient journey touchpoints in terms of awareness, screening, diagnosis, treatment, adherence, and control for depression in Brazil using a semi-systematic approach highlighting the knowledge gaps in the existing literature. A structured search of Embase, MEDLINE, and BIOSIS databases was conducted to identify the relevant studies published in English, Portuguese, and Spanish from 2006 to 2021. An unstructured search was also conducted on Google or government websites with no restrictions. To address the data gaps, anecdotal data were also considered. Weighted or simple means were calculated for the pooled data. Of 3175 articles retrieved, 10 articles met the inclusion criteria. Synthesized evidence indicates that the pooled prevalence of depression in Brazil ranged from 4.1% to 21.8%; 42.4% of patients had awareness of depression, 37.5% underwent screening, 18.7% had a diagnosis, and 54.4% received treatment. No data on adherence and control were available. The study findings highlight the need for more research to accurately estimate the common patient journey touchpoints for depression to achieve better clinical outcomes in Brazil.

Introduction

Depression is one of the most common psychologic disorders and imposes a significant burden on society and individuals. An estimated 264 million people are affected by depression globally [1]. The estimates also show that >50% of the global population would not self-report depression and around 12% would not seek prescription medication for the treatment [2]. As revealed by the United States Preventive Services Task Force Evidence Review, 97.7% of ambulatory patients attending primary clinics are not screened for depression at all [3]. As a result, 89% of patients with depression fail to receive guideline-recommended depression care [4], and 83% of the patients remain undertreated in primary care [5].

Similarly, depression generally remains underreported in Brazil. Brazil has refurbished its mental health law and policy and, recently. released a "Technical Memorandum" to ensure specialized care for patients with mental disorders [6,7]. However, these policies did not translate into the required change in the mental healthcare state in the country, especially at the primary healthcare level [6]. Brazil Mental Health Law 10.216 recognizes the right to mental healthcare for people

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with mental disorders, but its implementation is not consistent across the country [8]. Moreover, the law is not in sync with the updated technical and scientific recommendations [6]. Another lacuna is that the Brazilian health policy does not recommend any mechanism for the ongoing evaluation of mental health services [6,7]. This could be due to the gaps in the availability of real-world data in Brazil, which is generally expected from the drive(s) for mental healthcare, particularly depression care by the Brazilian Health Ministry [9]. Therefore, the diagnosis and treatment are delayed, and the patients often present at a late stage of the disease, which poses a huge burden on the health system in managing these patients. There is an emergent need to identify these and other challenges associated with the lack of awareness and socio-behavioral issues contributing to the challenges, for example, the stigma associated with mental disorders, which contributes to the gap in depression care.

The current prevalent situation of depression care in Brazil inspired the authors to take a dipstick in published data to inform locally effective early interventions at the primary care level. The methodology adopted was based on a novel approach for Mapping the Patient Journey Towards Actionable Beyond Pill Solutions for Non-communicable Diseases (MAPS) to help generate country-specific data related to various stages of the patient journey including awareness, screening, diagnosis, treatment, adherence, and control [10]. The MAPS approach is useful in implementing effective solutions and proposing practical recommendations using local evidence, which are directly applicable to the patients and healthcare systems that will use them. The study aimed to identify the gaps and quantify the data across various stages of patient journey touchpoints, including awareness, screening, diagnosis, treatment, adherence, and control, for depression that can support better patient outcomes in Brazil.

Methods

Study design

This study used evidence mapping and a semi-systematic data review approach based on a structured semi-systematic literature search combined with an unstructured search and anecdotal data in the local context. It was followed by validation, synthesis, and quantitative mapping of the data on the prevalence and different patient journey touchpoints in terms of disease awareness, screening, diagnosis, treatment, adherence, and control for depression in Brazil. The definitions of the terms used in the study are provided in Table 1. This current review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, with minor modifications in line with the scope of this study [11].

The following 6 steps were used to construct the hypothesis: (1) Developing a comprehensive search strategy, (2) Establishing the inclusion and exclusion criteria, (3) Screening, and (4) Supplementing with additional and/or local data by a local expert, (5) Data extraction, and (6) Data analysis.

Search strategy

Structured search

The structured search was conducted on 3 electronic databases, including Embase, MEDLINE, and BIOSIS, using Medical Subject Headings (MeSH) terms and keywords for depression combined with search terms related to the prevalence and patient journey touchpoints. The search was designed to include all the studies related to depression in Brazil. The studies published in English, Portuguese, and Spanish language from January 1, 2006, to July 31, 2021 were included, as it provides a balance between the availability and relevance of the data over a decade.

Unstructured search

An unstructured search was also conducted in the Incidence and Prevalence Database (IPD), World Health Organization (WHO), Ministry of Health of Brazil, Google, and national clinical practice and treatment guidelines with no restrictions on date limits to avoid missing any relevant study.

The following keywords were used:

Depression OR Major Depressive Disorder (MDD) OR Depressive disorder OR major depression OR mood disorder OR persistent depressive disorder OR unspecified depressive disorder OR antidepressant AND

National OR registry OR survey OR real world OR real-world OR Incidence OR Prevalence OR Epidemiolog* OR Screen* OR Treat* OR Therap* OR Aware* OR Knowledge OR Diagnos* OR Undiagnos* OR underdiagnos* OR Adheren* OR Complian* OR Control* OR uncontrol*

Brazil* OR Brasil* OR Latin America*.

Inclusion and exclusion criteria

Studies were included in the analysis if they meet the following criteria:

(i) Peer-reviewed published systematic review, randomized controlled study, and observational study;
(ii) Human data from adult populations aged ≥18 years with depression;
(iii) Reporting quantitative epidemiologic data for the patient journey touchpoints, including awareness, screening, diagnosis, treatment, adherence, and control;
(iv) Depression is defined according to the criteria common to the Diagnostic and Statistical Manual (DSM)-III, DSM-IV, and DSM-V: the presence of ≥5 symptoms in the last 2 weeks with >1 symptom being either depressed mood or the loss of interest or pleasure [12−14].

Table 1
Definitions used in the study for various terms.

Term	Definition
Depression	Depression is defined according to the criteria common to the Diagnostic and Statistical Manual (DSM)-III, DSM-IV and DSM-V: the presence of ≥5 symptoms in the last 2 weeks with >1 symptom being either depressed mood or the loss of interest or pleasure. Mild depression is diagnosed when the severity of the symptoms is distressing but manageable, there are few, if any, symptoms beyond those necessary for the diagnosis, and they only slightly impair social or occupational functioning. Whereas in severe depression, the severity of the symptoms is extremely upsetting and uncontrollable, the number of symptoms is far greater than that needed to make the diagnosis, and the symptoms significantly impair social and occupational functioning [47]
Awareness	Self-reported knowledge or awareness of depression/depressive disorders
Screening	Use of assessment questionnaires to screen for depression/depressive symptoms/depressive disorders
Diagnosis	Diagnosis of depression/ depressive disorder by an HCP
Treatment	Use of pharmacotherapy or psychotherapy to treat depression/depressive disorders
Adherence	Self-reported adherence and/or compliance with prescribed pharmacotherapy or psychotherapy
Control/Remission	Improvement in depressive symptoms during treatment

The studies published before January 1, 2006; languages other than English, Portuguese, and Spanish; editorials, letters to the editor, thesis abstracts, case studies, studies with specific patient subgroups, studies not related to depression, duplicate records, studies including specific patient subgroups such as patients with comorbidities and pregnant women, and data not from the representative country were excluded.

This comprehensive search strategy was followed to minimize the risk of missing relevant literature and to avoid significant unrelated studies.

Study selection

An independent reviewer conducted both structured and unstructured searches by screening the titles, abstracts, and full texts of each study for relevance. A second independent reviewer reviewed the search results based on the study title, article citation, author names, year of publication, abstract, study design, study participants, and study setting for their inclusion based on the eligibility criteria. In case, the patient journey data were not available from the nationally representative study population, studies with a smaller sample size of < 500, population subgroups, and single centers were also included. Any disagreements were reconciled by discussion among both the reviewers and other co-authors. Furthermore, any identified data gaps were supplemented with publications in local languages and anecdotal data from local clinical experts. A survey was conducted by sharing a standard set of questions prepared by the local clinical experts to get the opinion of the key opinion leaders.

Data extraction

After the manual screening, relevant data from the included articles were exported to Microsoft Excel for data extraction and were validated by local experts, who are also the authors of this paper, to ensure consistency with the local prevalent conditions and expert opinion. The synthesized evidence was represented as an evidence map. The data extracted from the studies included (1) Title of the article, (2) Article citation, (3) Authors, (4) Year of publication, (5) Abstract, (6) Population characteristics, (7) Sample size, (8) Prevalence of each indication in the subpopulation, and (9) Quantitative categorization of each patient journey touchpoint for depression. To provide a perspective of the local situation, in case an article mentioned a low proportion of the patients completing a particular stage of the journey, the locally prevalent issues mentioned in the article, possibly contributed to the low proportion of a patient journey touchpoint and the suggested interventions were captured by the extraction of the qualitative descriptions.

Quality of studies and data analysis

The quality of the studies was ensured by reviewing the reporting items of the studies based on the reporting guidelines for their respective design [12–16]. The data from the included studies with respect to the patient journeys touchpoints such as prevalence, awareness, screening, diagnosis, treatment, adherence, and control of depression were pooled. The weighted averages were calculated for the diagnosis and treatment of depression, and a summary of the outcomes is visually presented in the form of a tabular summary of the outcome results. A simple average was calculated for the anecdotal data for the screening stage. Although the random effects model could also be considered as it appropriately uses the variable parameters; however, in this study, considering one variable, a simple average was used.

Results

Review of retrieved studies

Of the 3175 articles retrieved for depression, 3173 were from structured search and 2 were from unstructured search. Of these, 9 articles from structured (research papers [n = 8], web-content [n = 1]) and 1 article from an unstructured search were considered for the final analysis. All the included studies were cross-sectional in design (Fig. 1). Among the included articles, 2 papers used the data from São Paulo Megacity Mental Health Survey, 1 study used data from Pesquisa Nacional de Saúde or National Health Survey (PNS) 2013, and another study used the data from National Health and Wellness Survey 2011, while 1 study was based on an epidemiologic survey as a part of the Gender, Alcohol, and Culture: An International Study (GENACIS project). Three studies were cross-sectional and based on household interviews. While 4 studies used the "Composite International Diagnostic Interview" tool, 3 used Patient Health Questionnaire (PHQ-9), and 1 used an indigenous questionnaire. The study-wise details are presented in Table 2.

Pooled estimates

The population of Brazil was estimated in 2020 to be 212,559,000 [17]. The functional health literacy needed to deal with literacy regarding healthcare issues was estimated to be 68% among the heterogeneous adult population of Brazil based on the screening questions and demographic characteristics formulated in a tool "Short Test of Functional Health Literacy" [18]. A National Health Survey (PNS), was conducted in Brazil, and the treatment gap for depression was determined. Among those with depression, 78.8% did not receive any treatment, and 14.1% received treatment. The pooled estimates prevalence of depression in Brazil where estimates ranged from 4.1% to 21.8%. Among the studies included in the design, 8 studies revealed the prevalence of depression. One study evaluated the awareness, diagnosis, and screening, whereas 3 studies evaluated the treatment. The percentage of awareness was observed to be 42.4% among patients with depression [19,26]. The percentage of the population screened for depression was found to be 37.5%, as opined by the local experts, but the percentage of patients diagnosed was 18.7% [12,19]. The percentage of patients diagnosed with depression followed by pharmacologic treatment was high (54.4%) [21,23,26]. The percentage of overall awareness, screening, diagnosis, and treatment was found to be low for depression in Brazil (Table 3). No data were found for adherence and control.

Discussion

This semi-systematic review quantitatively assessed and identified the data gaps with the prevalence and different stages of patient journey touchpoints in patients with depression in Brazil. The prevalence of patients with depression was low in Brazil, probably due to underreporting, as patients are reluctant to self-report [28]. and associated social stigma prohibits their visit to mental hospitals [26]. The diagnostic challenges also contribute to underreporting by Primary Care Physicians (PCPs). As reported in the studies, depression was relatively higher among women, individuals aged either 40 to 59 years or ≥80 years, individuals living in urban areas, those with lower educational levels, smokers, and individuals with arterial hypertension, diabetes, and heart disorders [22]. The low awareness among the people was reported to be due to poor education and culturally stigmatizing misbeliefs about the treatment of depression. The authors concluded that socioeconomic inequality, urbanization, and poor living conditions contribute to mental health disorders [23]. Furthermore, a low proportion of diagnoses in the patient who initiated treatment, and low adherence reduced the effectiveness of measures taken to curb depression among the population. Moreover, drug treatment is not the only way to control depression. Various awareness program helps to overcome the problem [25–28].

The prevalence of depression ranged from 4.1% to 21.8%, which is lower compared with the Americas and Europe (15.9–28.9% and 32.2%, respectively) [29]. A National Health Survey (PNS), was conducted on the Brazilian population. Among those with depression, only 10–15% received treatment. As per the World Health Organization (WHO) data, there was an increase of 18.4% in the number of people with depression in the period from 2005 to 2015, and the prevalence of

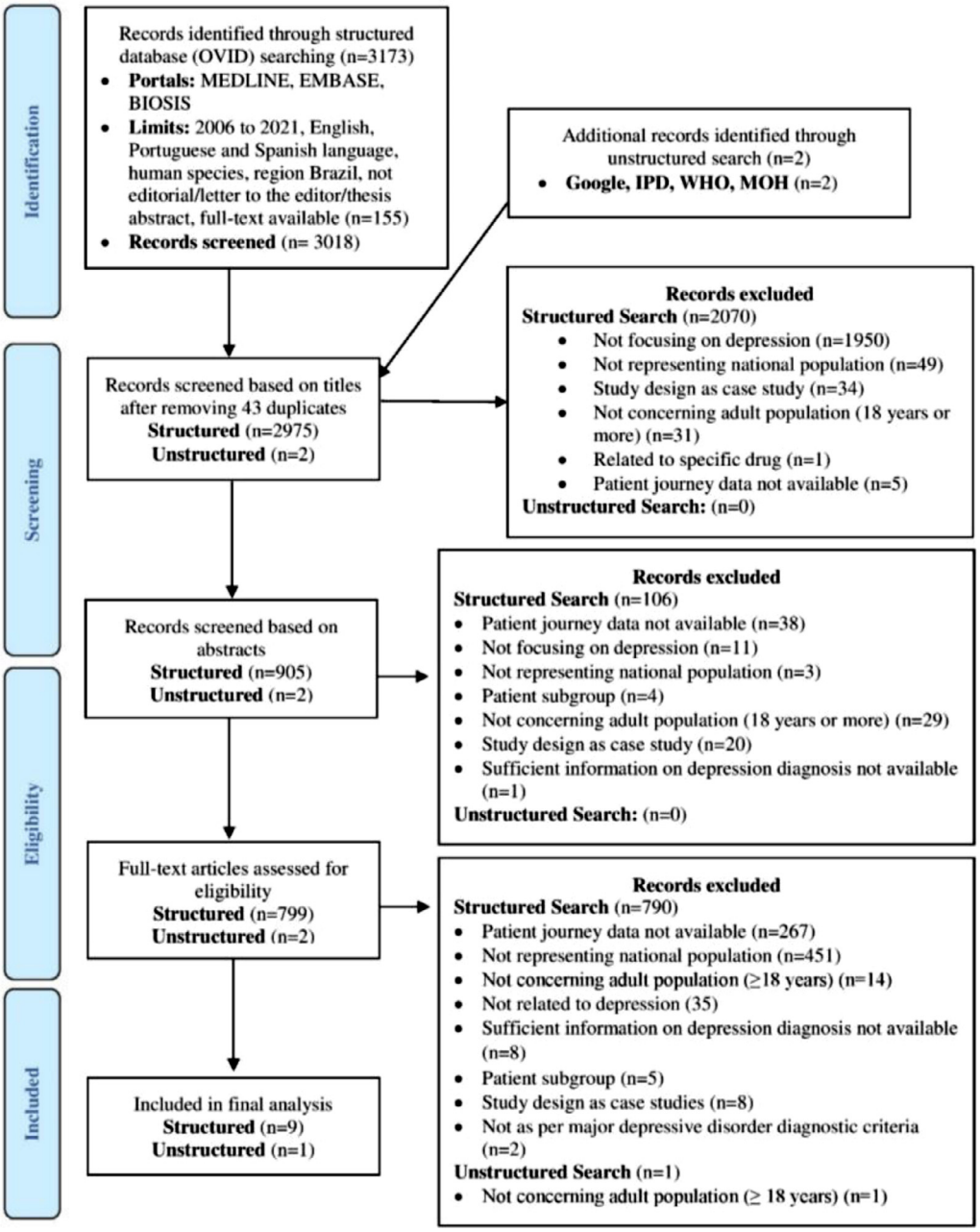

Fig. 1. PRISMA diagram showing selection of studies for inclusion in the review. IPD, Incidence and Prevalence Database; WHO, World Health Organization, MOH, Ministry of Health.

depression in Brazil is 5.8%, the highest rate in Latin America. The worldwide prevalence is 3.6% and Brazil has the highest number of cases of depression among all countries in the world, affecting 9.3% of the population. The highest prevalence of depression is noted in the female population [30].

Several research groups have reported the impact of the COVID-19 pandemic on the mental health of Brazilians. The data from these studies suggest that there was a significant prevalence of psychiatric symptoms in the sample population [29,31-33]. However, the prevalence of depression was found to be higher due to COVID-19. Although the published studies show high awareness and treatment of depression in Brazil, a more accurate estimation of patient journey stages may be at 42.4% for awareness, 37.5% for screening, 18.7% for diagnosis, and 54.4% for treatment. Depression is associated with stigma globally, and Brazil is not an exception. This is one of the major challenges in seeking medical help, and patients are generally not vocal about these problems. An estimated 49% of the patients with depression face negative reactions, 41% face discrimination in society, and 56% are perceived as potentially dangerous [34].

Inadequate patient counseling during primary care practice and lack of community-level awareness generation programs contribute to low awareness among the population [35].

The availability of psychiatrists in Brazil is low compared with high-income countries (3.26 per 100,000 vs. 1 per 10,000 population). Southern Brazil, particularly São Paulo, has better availability of mental health specialists compared with Northern Brazil (4.55 psychiatrists per 100,000 inhabitants vs. <1 psychiatrist per 100,000 inhabitants) [36]. Thus, PCPs are taking on more prescribing authority for patients with complex mental health issues [37]. Medical care is also marred by a lack of integration between general primary care and specialized psychiatric

Table 2
Characteristics of the included articles.

S No	Authors	Year	Study design	Sample size (n)	Patient journey data
1	Wang et al. [21]	2017	A cross-sectional multistage representative study (São Paulo Mental Health Survey)	540	Treatment (32.80%)
2	Barros et al. [19]	2017	A population-based cross-sectional study (using the database of the National Survey on Health).	49,025	Prevalence (9.7%), Diagnosis (7.2%)
3	Munhoz et al. [22]	2016	Survey (household-based interviews) conducted with random and cluster-based sampling (performed in three stages: census tracts, households and individuals).	60,202	Prevalence (4.1%)
4	Galvao et al. [23]	2014	A cross-sectional population-based study. Sample selected using a two-stage probabilistic sampling and interviewed in their home	1,820	Treatment (60.4%)
5	Viana et al. [24]	2012	A cross-sectional population-based epidemiological study.	5,037	Prevalence (16.9%)
6	Prado et al. [25]	2012	An epidemiological survey using a stratified probability sample	2,083	Prevalence (21.8%)
7	Fujii et al. [26]	2012	A cross-sectional survey	12,000	Prevalence (10.2%), Awareness (42.4%), Diagnosis (65.9%), Treatment (54.5%)
8	Andrade et al. [27]	2012	A representative sample survey	5,037	Prevalence (9.4%)
9	Moreno et al. [20]	2010	A cross-sectional study	1464	Prevalence (9%)
10	Lopes et al.	2016	National Health Survey (PNS)	60202	Prevalence (7.9%)
11	KOL Opinion (Anecdotal data)		NA		Screening (25% to 50%)

Abbreviations: GHO: Global Health Observatory (The Global Health Observatory is an initiative of the World Health Organization to share data on global health, including statistics by country and information about specific diseases and health measures); KOL: Key Opinion Leader; WHO: World Health Organization.

Table 3
Patient journey touchpoint estimates from the included studies.

Awareness	Screening	Diagnosis	Treatment	Adherence	Control
42.4%[a]	37.5%[ǂ,b]	18.7%[†,a]	54.4%[†,a]	No data	No data

[†] Weighted average,
[ǂ] Simple average,
[a] Published data,
[b] Anecdotal data.

care in mental hospitals and, hence, needs greater collaboration and integration.

Another major challenge that needs to be addressed is upgrading the skills and expertise of the treating PCPs and specialists via continuing medical education. Most PCPs, especially those working in the *Programa Saúde da Família* or Family Program Teams (PSF), are poorly trained in recognizing the signs and symptoms, diagnosis, and management of depression [38]. PCPs can play a major role in ensuring the prevention and control of non-communicable diseases by enhancing the ability of PCPs through training in screening, diagnosis, and treatment. Those who were willing to seek help for mental health preferred PCPs over psychiatrists.

Using a more structured psychiatric screening assessment method in practice can strengthen the assessment of depression [39]. The lack of generalizable calibration of items of assessment tools such as DSM-based PHQ-9 is a major limitation in its use in primary care outpatients in Brazil, particularly in rural settings [40].

Only a few PCPs follow internationally accepted guidelines, such as Canadian Network for Mood and Anxiety Treatments (CANMAT) guidelines, for improving the clinical care for patients with mood and anxiety disorders. Although the Brazilian guidelines for depression are available in the local context, these have not been updated for a long time [41].

The lack of funding for mental health leaves a small budget for the implementation of optimal care services for patients with depression [36]. This can be attributed to channelizing larger funding to drug abuse as part of mental health in the public sector, which is available to the population free of charge via the National Unified Health System (SUS) [42]. Limited support from the Brazilian government is available for the awareness of depression and the management of mental health issues [43]. The expansion of community-based mental health services has come to a virtual standstill since 2011 [9]. Linkages of specialized care with primary care and the implementation of Centers to Support Family Health (NASF) have been another limitation [44]. Telemedicine can be utilized to monitor patients' health and provide health advice. Online interaction platforms or secured mobile applications can address the concerns about treatment plans prescribed by healthcare providers, so as to dispel the disinformation on online forums and social media. Likewise, with secured apps, the individual can quickly reach their assigned/preferred healthcare provider to foster closer interaction between them and the providers. Many of the studies suggest that telepsychiatry gave similar outcomes in comparison to in-person care regarding improvement in the severity of depression, quality of life, patient satisfaction, functioning, cost-effectiveness, and most other perceptions and variables [45,46]. Psychosocial Community Centers and the Return Home program help in deinstitutionalizing long-stay patients. However, services are unequally distributed and the growth of the elderly population along with an existing treatment gap is increasing the burden on mental healthcare in Brazil [38].

Limitations

The available data and findings were limited particularly for screening, adherence, and control of depression despite an extensive search. Moreover, the studies conducted on specific patient subgroups were excluded, and therefore, the authors might have missed additional evidence. Publication bias might have been introduced because of the inclusion of only full-text publications and the exclusion of nonclinical studies.

Conclusion

The goal of this study is to design the journey of a patient with depression to achieve better clinical outcomes. When implicated with various touchpoints along the patient journey, there can be improved awareness, screening, diagnosis, and treatment solutions to engage better patients' compliance and to predict and prevent the risk factors that lead to adverse health consequences. The patient journey data generated by the study will represent the comprehensive analysis and contribute to achieving better outcomes. This can help in detecting depression early in a vulnerable population. The Brazilian healthcare system needs a multi-pronged approach to tackle the fast-growing burden of depression. Extensive screening and mental health awareness programs will help

alleviate myths, stigma, and misbeliefs. The results can be fruitful by empowering the PCPs through training in the screening, diagnosis, treatment, and referral of depression. The government aid for further implementation will bridge the data gaps and act as a pillar in building a country free from the unnecessary suffering caused by depression.

Conflicts of interest

The authors declare no conflicts of interest.

Authors' contributions

All the authors contributed to study planning, reviewed the manuscript, and approved the final manuscript.

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Ethics approval and consent to participate

Not applicable.

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