Original Research Article

A Semi-Systematic Review of Patient Journey and Management of Depression in Saudi Arabia

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Abstract

This semi-systematic review aimed to quantitatively map and identify data gaps in the patient journey touchpoints for depression in Kingdom of Saudi Arabia namely disease prevalence, awareness, screening, diagnosis, treatment, adherence and management. A structured search was conducted using the predefined inclusion criteria to identify relevant studies from Jan 2010–Dec 2019. To address the data gaps, an unstructured literature search and anecdotal data were also included. Data obtained were synthesized and simple or weighted mean was calculated. Of the 2,025 articles retrieved from structured and unstructured search, eight were included for final analyses. Two anecdotal data sources recommended by the local experts were also included. Most of the articles included were cross-sectional in design. The overall prevalence of depression was estimated at 18.2%. Synthesized evidence indicated that 41.8% of the patients had awareness, 44.9% received treatment and 40.7% adhered to treatment. According to anecdotal evidence, the rate of screening and diagnosis of depression was 35.0% and 55.0%, respectively, of which 60.0% of the patients achieved symptom remission. Lack of data in patient journey touchpoints for depression in Saudi Arabia highlight the need for more evidence-based studies. This might improve patient care and support national level decision-making.
Keywords: Depression, Evidence map, Prevalence, Patient journey, Kingdom of Saudi Arabia.

INTRODUCTION

Depression is a mental illness characterized by loss of interest, persistent sadness, tiredness, disrupted sleep or appetite, poor concentration, and fatigue. During a depressive episode, people feel frustrated, hopeless, and have very low self-esteem [1]. Extreme cases, when left untreated, can lead to suicide, accounting for 700,000 deaths/year. As stated by the World Health Organization (WHO), the primary contributor of disability in the world is depression, impacting ~280 million people globally [1]. Around 8.1% of the general population of the United States has been reported to have depression [2], while the prevalence in European countries has been estimated to be 6.4% [3]. As the underlying cause of the disorder remains unknown, risk factors— e.g., a medical condition that persists for a long time, unemployment, inheritance of depression, stress, lack of support from society, marital problems, and poverty—are the probable contributors [1, 4]. It has been estimated that mental illness results in a productivity loss of US$ 1 trillion/year worldwide [5].

The prevalence of depression in Saudi Arabia has been estimated in several studies and varies between different regions. In 2011, Abdulwahid and colleagues reported a depression prevalence of 12.0% in the south-eastern region of Saudi Arabia [6]. Whereas in 2014, Al-Qadhi et al. observed the prevalence to be 49.9% in Riyadh [7]. In 2019, 74% of adult patients visiting primary healthcare centers in Tabuk had depression [4]. A recent systematic review reported the

prevalence of depressive symptoms to be 30.9%–77.6% among Saudi Arabian medical students [8]. The prevalence of depression is on the rise, which prompts the need for action and strategies to improve the management of depression in Saudi Arabia. Although clinical practice guidelines exist for the management of depression [9] they have not led to major changes in the outcomes during clinical practice [10]. Furthermore, depression symptoms are often undiagnosed and untreated in Saudi Arabia [11]. Many reasons hinder help-seeking behavior, one of which is the lack of knowledge about mental health issues. Other reasons are fear of social stigma, feeling embarrassed, negative attitude toward people with mental disorders, and a preference for self-reliance [8, 12]. Social stigma prevents patients from seeking help and adhering to treatment.

Along with several other benefits, early diagnosis of depression reduces the treatment costs by 80.0%. However, in 30.0%–50.0% of patients, doctors who provide standard care often fail to recognize symptoms of depression [7]. Another study conducted in Saudi Arabia reported low awareness level on people's attitude toward depression, as 75.0% of the participants considered supernatural factors as the causative factors of depression [13]. Additional challenges in accessing treatment were low detection rates, prolonged hospitalization due to lack of family support, lack of ability to perform differential diagnosis, and absence of active screening initiatives and modern approaches to mental health services [14, 15]. These significant inequalities in care blur the outlines of patient-centric care delivery. Inconsistencies in terms of poor self-reporting and low medication adherence have been observed not only at the provider's level but also on the patients' side owing to several misconceptions about antidepressants [13, 16]. Another concern is that the 9-item Patient Health Questionnaire test, which is used to measure the levels of depression, is based on patients' self-reporting. Therefore, there may be a risk of misinterpretation as well as an under- or over-estimation of the disease [17, 18].

Considering the current scenario, it is understood that the level of primary care being provided to depressed patients in Saudi Arabia is inadequate. Therefore, to devise better strategies for successful treatment outcomes, it is important to understand the structural inconsistencies, practice gaps, and scope of improvement from the policy perspective [19]. Unfortunately, except the Saudi National Mental Health Survey Report, sporadic publications providing unreliable prevalence estimates, and some information available on practice gaps, no strong evidence is available to advocate a reform in mental health services in both research and practice [20]. The current prevalent situation of depression care in Saudi Arabia inspired the authors to analyze published data in order to inform locally effective early interventions at the primary care

level. The methodology adapted was based on a novel approach for mapping the Patient Journey towards Actionable beyond the Pill Solutions (MAPS) for non-communicable diseases to help generate country-specific data related to various stages of patient journey touchpoints [21]. The MAPS approach will help mitigate the barriers, acknowledge the gaps from scientific evidence to inform future research priorities, and emphasize the importance of these topics in health organizational policy implementation.

This semi-systematic review was conducted to identify gaps and quantify data across various stages of patient journey touchpoints that can support national-level decision making and patient outcomes.

METHODS
Study design
A semi-systematic literature review was conducted to search for articles quantifying patient journey touchpoints in terms of screening, diagnosis, disease awareness, treatment, adherence, and management of depression in Saudi Arabia. Depression was defined as the presence of ≥5 symptoms (as per the Diagnostic and Statistical Manual [DSM]-V) in the last 14 days with >1 symptom being depressed mood, inability to experience pleasure, or loss of interest. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were adopted with minor modifications in line with the scope of this study [22]. The methods used to conduct the review were documented in detail elsewhere, as MAPS [21].

Structured and unstructured search
A structured search was conducted using the keywords linked to depression and different stages of patient journey touchpoints in the Embase, Medline, and Biosis databases. The details of the search string are summarized in Table 1. To fill the data gaps in the structured search, an unstructured search was conducted using Google Scholar, the WHO website, Ministry of Health of Saudi Arabia, the Incidence and Prevalence Database, and national clinical practice and treatment guidelines, with no date restrictions.

Inclusion and exclusion criteria
Literature search was conducted to identify articles published in English within the last 10 years (January 1, 2010–December 10, 2019) that reported patient journey touchpoints in depression (Table 2). Of these, the eligible studies included (i) human adult populations aged ≥18 years and (ii) randomized controlled trials (RCTs), published systematic reviews and/or meta-analyses, observational studies, and narrative reviews (conference abstracts and full-texts published).

Studies were not included if they did not focus on depression or did not include participants from Saudi Arabia. Case studies, editorials, letters to the editor, and

studies with particular patient subgroups (e.g., those with other comorbidities) were also excluded.

Study selection

Based on the titles and abstracts, primary screening and data retrieval were performed by the first independent reviewer. A second independent reviewer prioritized articles based on the pre-defined eligibility criteria and a full-text review at the second level of screening. Any disagreements among the reviewers were reconciled via mutual scientific discussions. Furthermore, any identified data gaps were supplemented with publications in regional languages and anecdotal records from local clinical specialists. Studies from all sources were thoroughly examined before being included in the final analysis.

Data Extraction

Data relevant to prevalence and patient management stages were transferred to a data mining grid after manual screening. To ensure consistency, extracted data were further reviewed and verified. An evidence gap map was created to reflect the synthesized evidence. To reduce bias caused by methodological constraints in different studies, the weighted or simple average of the entire data was determined.

RESULTS

Search results

Of the 2025 retrieved articles, 2024 were from the structured search and one from the unstructured search. Finally, eight articles met the inclusion criteria after the data mining process. Most articles were excluded as data were not from representative countries (n=829) and not focusing on depression (n=691) (Figure 1). On the advice of local clinical specialists, two anecdotal data were also included in the study.

Description of the included studies

All included studies were cross-sectional in design and were published between 2011 and 2019. Of the eight studies, four indicated the prevalence of depression in which one study recruited (n=477) from three large primary care centers in Riyadh, Saudi Arabia [7], second recruited (n=272 from Sharurah Armed Forces Hospital, Sharurah, Saudi Arabia [6], the third was from Dammam and Al-Qatif areas, Eastern Saudi Arabia (n=822) [14], and the fourth one was from Al-Ahsa, Saudi Arabia (n=5172) [23]. One study that included women ≥18 years of age (n=409) attending university hospital clinics in Riyadh, Saudi Arabia, reported higher awareness (65.6%) regarding depression in Saudi Arabia [24]. Around 84.5% of the patients had received psychotropic medication in inpatient and outpatient psychiatric settings in Saudi Arabia [25]. For addressing data gaps in depression at the national level, anecdotal data were collected by organizing an interview with Dr. Ahmed Hassan Alshareif (unpublished) and Dr. Rafat Aloweisie (unpublished) using patient journey touchpoints definitions. Subsequently, these data were verified and included upon mutual consensus (Table 3).

Mapping the evidence

The total population of Saudi Arabia was estimated to be 34,269,000. Health literacy, as assessed in a subset of adults (≥18 years of age), was reported to be 84.0% [26]. The evidence synthesis and relevant patient journey touchpoints extracted are presented in Table 4. The average mean prevalence of depression after pooling the data was 18.2%. The published studies did not provide quantitative evidence for all the patient journey touchpoints. The average mean estimate of depression awareness was 41.8% among the general population of Saudi Arabia. Less than half (44.9%) of the patients were taking depression medication and showed a low degree of adherence to the prescribed medication (40.7%). Further details were collected from the anecdotal evidence on depression for the patient journey touchpoints in the population. An assessment of the anecdotal evidence showed that only 35.0% were screened and 55.0% had undergone diagnosis for depression. Further assessment of the anecdotal evidence showed that over half (60.0%) of the patients showed symptom remission.
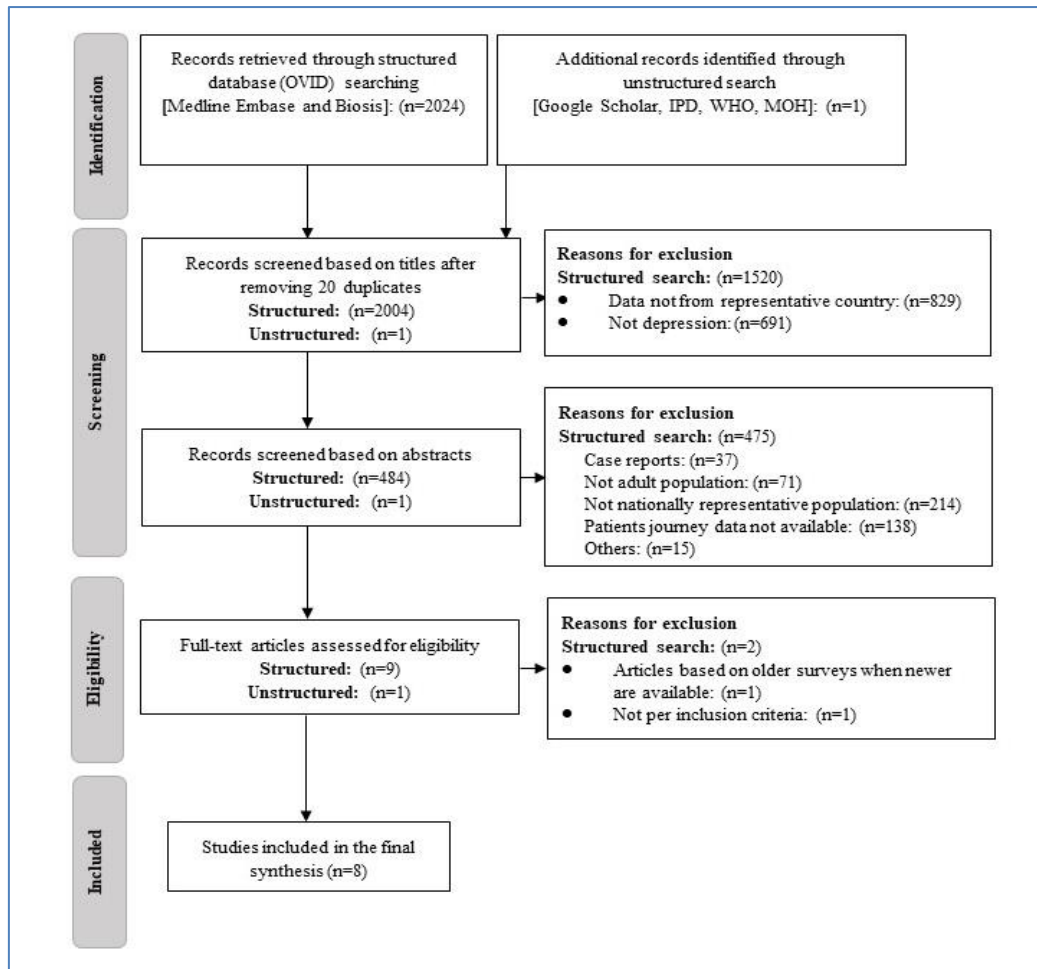
Fig-1: Flowchart of literature search results

IPD, Incidence and Prevalence Database; MOH, Ministry of Health; n, number of articles; WHO, World Health Organization

Table-1: Semi-Systematic Structured Literature Search for Depression

Structured search string (OVID)	Depression OR major depressive disorder OR Depressive disorder OR major depression OR mental health OR mental disorder OR mood disorder OR MDD 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* **AND** KSA OR Saudi Arabia* OR Saudi* OR Arab* OR Middle East*
Database searched	Medline, EMBASE, BIOSIS
Limits applied	Time Period: from 2010 to 20 December 2019 Language: English Species: Humans, Human Full text available

Table-2: Patient Journey Touchpoint Definitions for Depression

Term	Definition
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 a healthcare professional
Treatment	Use of pharmacotherapy or psychotherapy to treat depression/depressive disorders
Adherence	Self-reported adherence and/or compliance with prescribed pharmacotherapy or psychotherapy
Management/ remission	Improvement in depressive symptoms during treatment

Table-3: Overview of the Included Studies

Title: First author; publication year	Study design	Sample size (N); characteristics	Prevalence (%)	Awareness (%)	Screening (%)	Diagnosis (%)	Treatment (%)	Adherence (%)	Remission (%)
Depression literacy in women attending university hospital clinics in Riyadh Saudi Arabia. Siddiqui *et al*. [24]	Cross-sectional	409, women (18+ years of age)	NA	65.5	x	x	x	x	x
Adult depression screening in Saudi primary care: prevalence, instrument and cost. Al-Qadhi *et al*. [7]	Cross sectional	477; patients aged between 18–65 years	49.9	x	x	x	x	x	x
Screening of depression among patients in family medicine in southeastern Saudi Arabia. Abdelwahid *et al*. [6]	Cross sectional	272; aged ≥18 years	12.0	x	x	x	x	x	x
Depression and anxiety among males attending primary health care centers, Eastern Saudi Arabia: Prevalence and predictors. Al-Shehri *et al*. [14]	Cross-sectional	822; aged >18 years	32.8	x	x	x	x	x	x
Prevalence and associated factors of depression among general population in Al-Ahsa, Kingdom of Saudi Arabia: A community-based survey. Al Rashed *et al*. [23]	Cross-sectional	5,172; aged ≥18 years	8.6	x	x	x	x	x	x
Patterns of psychotropic medication use in inpatient and outpatient psychiatric settings in Saudi Arabia. Alosaimi *et al*. [25]	Cross-sectional observational	1,246; patients seeking psychiatric advice	x	x	x	x	84.5	x	x
Factors associated with adherence to medication among depressed patients from Saudi Arabia: A cross-sectional study. Al Jumah *et al*. [16]	Cross-sectional	403; patients aged between 18 to 60 years	x	x	x	x	x	47.1	x
Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: A systematic analysis for the global burden of disease study 2017. GBD 2017 disease and injury incidence and prevalence collaborators; 2018	NA	NA	2.7	x	x	x	x	x	x
Mental health atlas 2017 - Resources for mental health in the Eastern Mediterranean region. World Health Organization regional office for the Eastern Mediterranean; 2019	National survey	NA	x	x	x	x	0.1	x	x
Depression and other common mental disorders: Global Health estimates. World Health Organization; 2017	Syntheses of the available epidemiological literature	NA	4.5	x	x	x	x	x	x
Saudi National Mental Health Survey 2019 - technical report (healthandstress.org.sa); 2019	State-of-the-art national survey	4,004; male and female aged between 15 and 65 years	6.0	x	x	x	x	x	x
Anecdotal evidence (Dr. Ahmed Hassan Alshareif [Consultant Psychiatrist, King Abdul-Aziz University Hospital, Jeddah])	Anecdotal data	NA	4.3	40.0	50.0	60.0	45.0	40-50	60.0
Anecdotal evidence (Dr. Rafat Aloweisie [Consultant Psychiatrist, Medical Director of Circle of Integration Medical Center, Riyadh])	Anecdotal data	NA	5.0	20.0	20.0	50.0	50.0	30.0	x

Table-4: Patient Journey Touchpoint Estimates from the Included Studies

Country	Population	Literacy	Prevalence	Awareness	Screening	Diagnosis	Treatment	Adherence	Remission
KSA	34,269,000	84.0%[a]	18.2%[*‡b]	41.8%[*‡b]	35.0%[‡c]	55.0%[‡c]	44.9%[‡b]	40.7%[*‡b]	60.0%[‡c]

KSA: Kingdom of Saudi Arabia
*Studies including population sub-groups, single-center studies, or a sample size <500
‡Simple average
a=peer reviewed publication;[26] b=scientific literature + expert opinion; c=expert opinion only

DISCUSSION

Mapping the patient journey has been considered an important strategy to understand patients' perspective at each phase of disease enabling patient-centred values in the health care system. This semi-systematic evidence-based study, for the first time, quantitatively examined and identified data gaps with regards to the prevalence of depression and different stages of patient journey touchpoints (awareness, screening, diagnosis, treatment, adherence, and symptoms management) in Saudi Arabia. Eight articles through literature searches (structured and unstructured) and anecdotal data from regional experts were found to be relevant for the final analysis.

The final analysis mostly included cross-sectional studies. The studies provide valuable information at a specific point, but they do not have information on longitudinal observational studies. Moreover, cross-sectional studies lack insights about the cause-and-effect relationships between the variables, which RCTs can provide [27]. Therefore, the results of this study reinforce the need for longitudinal observational studies and RCTs exploring various patient journey touchpoints for the management of depression in Saudi Arabia.

The prevalence of depression among the Saudi Arabian general population was estimated to be 18.2%. A Dammam- and Al-Qatif-based cross-sectional study reported a prevalence of 32.8% for depression [14]. Moreover, another cross-sectional study from Riyadh reported a 49.9% prevalence of depression among the primary care adult population [7], thus providing evidence for wide variations in the reported prevalence of depression in Saudi Arabia. This could mainly be due to the small sample size, different scales chosen for screening, difference in awareness among the study population, and mechanisms of self-reporting in rural and urban areas. Other possible reasons include demographic variation, in particular, age, difference in the health status of the participants, use of different depression diagnostic tools, and availability of a validated screening tool in the local dialect [4, 7, 28, 29]. Inaccurate estimates in the form of false positives or negatives may also lead to inefficient leveraging of resources in the national health system, thereby increasing the overall burden [30].

Anecdotal data showed that 35.0% of the patients underwent depression screening. The low screening rate could be partially attributed to poor screening, a result of sociocultural influences, gender disparities, inability of the physicians to differentiate between somatic and depression symptoms, or the geriatric population [31, 32]. Other reasons could be difference in screening tools, diversity of assessment methods, and difference in genetic and environmental factors [33]. Therefore, screening is crucial to identify depression in its early stages and prevent further complications.

Mental health professionals are registered with the Saudi Commission for Health Specialties, a governing body cum central licensing authority. According to a report, psychiatrists are required to be knowledgeable in either of these modes of therapies: interpersonal psychotherapy, psychodynamic-, cognitive- behavioral-, family-, group- and/or supporting-therapy [34]. A systematic review demonstrated that internet-based interventions for depression and anxiety have been effective in reducing symptoms of both depression and anxiety. This was enhanced by therapist guidance [35]. Such strategies prove to be helpful for patients who face accessibility issues. Shortage of psychotropic medicines has been reported in Saudi community pharmacies due to a low profit margin and slow movement of these medicines [36]. According to another survey, the non-seriousness of psychiatric symptoms and high cost of psychiatric services were attributable factors for the use of psychotropic medicines without a prescription by psychiatric patients in Saudi Arabia [37]. Moreover, due to a poor policy framework and limited involvement of the Saudi FDA, there is an unmet need for the proper handling of the shortage reports of the medications available in Saudi Arabia. The list of essential psychotropic medications in community pharmacies of Saudi Arabia is also not available [36].

According to a survey of physicians' expectations, an important role of clinical pharmacists in providing patient education on the safe and effective use of medications is envisaged. Unlike physicians from other regions, physicians in Saudi Arabia were receptive to let community pharmacists provide inputs in the development of a treatment plan, monitoring of patient response to therapy, and resolution of drug-related problems at the personal level [38]. However clinical pharmacists' potential is underexploited to ensure better patient care. This may be attributed to the lack of emphasis provided to mental health in the prevalent education system for pharmacy graduates.

On the other hand, a major challenge in depression care is treatment adherence from the patient's end [16]. Despite the proven effectiveness of anti-depressants, patients in Saudi Arabia are less concerned to follow a strict treatment regimen prescribed by clinicians, even including premature discontinuation of medications. Further, there are sparse data available on the treatment adherence of patients in taking antidepressants in Saudi Arabia [16]. The patients from a younger age group were found to poorly adhere to medications because of known side effects, such as weight gain and impaired sexual function. Additional deterrent factors to treatment adherence were patient beliefs, including general harm and overuse beliefs [16]. Medication non-adherence is an important cause of treatment failure among patients with depression. The current study reports a high proportion (40.7%) of depressed patients with poor drug adherence. The study findings are in line with two other studies conducted in Riyadh and the Al Hasa region of Saudi Arabia reporting poor drug adherence (51%–57.5%) [39, 40]. Thus, there is a need for assessing the level of depression among the Saudi population to improve patient's adherence to medication.

Despite the high literacy rate (84.0%), there is a low level of awareness on depression in Saudi Arabia, indicating the requirement of education intervention initiatives for both healthcare providers and patients.

Although the government of Saudi Arabia has taken several encouraging steps to promote mental health research, studies have reported that lack of clarity on how to utilize the funding mechanism as the major deterrent for researchers to undertake mental health research projects in a rigorous manner [41]. On the practice side, given the ubiquitous advocacy about achieving universal health coverage (UHC), the need of the hour is to have dedicated health insurance packages for depression and other mental health issues over and above the existing general health benefit packages [42]. This will help reduce financial hardships for the needy population dwelling in the rural settings of Saudi Arabia. However, for the development of such schemes, availability of economic data is essential.

Considering the dearth of epidemiology data [43], large-scale epidemiology research should be conducted, which would establish a robust framework to take informed policy decisions [44]. Moreover, there is limited inclination toward health policy and systems research, mainly due to high cost of treatment in Saudi Arabia. Collaborative efforts between the government, administration, and academia in the clinical fraternity are essential to change this scenario. Given the emergence of UHC in the recent past and a conducive environment for incorporating health technology assessment in the system [45], it would be worthwhile to undertake health-economics-based research to investigate any flaws in resource allocation. Studying various risk factors associated with depression is equally important to control the disease burden by preventing their occurrence. For example, the main pre-morbid risk factors for a major depressive disorder include genetic influences, personality traits, psychopathology, and psychosocial functioning [46]. In addition, extrinsic risk factors such as modernization, sedentary lifestyle, social isolation, and predisposed mindsets with stigma may precipitate depressive symptoms [7]. Notably, most symptoms of depression manifest as somatic symptoms and may remain underdiagnosed [47]. This results in inaccurate estimates and subsequent healthcare decisions, which is why it is very important to keep an eye on the co-existing risk factors while working toward improving depression management.

Using a semi-systematic approach, the current study reported existing evidence and identified gaps in the management of patients with depression in Saudi Arabia. Due to lack of data, the exact rates of prevalence, awareness, treatment, and adherence remain uncalculated. Due to lack of published literature, screening, diagnosis, and symptoms management data on depression were based on anecdotal evidence. Furthermore, the regional variability in local experts' opinion was not tested because it was out of the scope of this review. In addition, quality assessment for bias identification was not performed.

CONCLUSION

Despite the limitations due to paucity of data, it was possible to demonstrate the vital need for re-considering the current health resource utilization in Saudi Arabia, as current evidence indicates a high degree of heterogeneity and questionable generalizability. A patient-centric, value-based care delivery approach with a sheer focus on an integrated care continuum, robust capacity-building programs, and an improved policy framework in Saudi Arabia would be a great step toward improving the five patient journey touchpoints for patients with depression. The government needs to take active steps to include depression care in the UHC as well as promote high-quality mental health research for the management of depression in Saudi Arabia.

ACKNOWLEDGEMENTS

CONFLICT OF INTEREST
The authors declare no conflict of interest.

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