

Epidemiological Trend and Social Determinants of Mental Disorders in Gujarat: An Evidence Synthesis

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ABSTRACT

Background: Mental disorders contribute substantially to disability, social exclusion, productivity loss, and suicide. Despite Gujarat's long history of mental health service development, rights-based reform and community mental health initiatives; state-specific evidence on epidemiological, social and system-level determinants remains fragmented. This review synthesizes evidence on the prevalence of mental disorders in Gujarat; identifies determinants of mental health; describes emerging mental health trends; and summarizes public health gaps relevant to strategic planning and primary-care integration.

Materials and Methods: A systematic review was conducted using PubMed, Epistemonikos, BASE, and Google Scholar for literature published January 2006–December 2025, supplemented by government and grey-literature sources. Eligible records included Gujarat-specific data on mental disorders, distress, suicide, substance use, maternal/postpartum depression, treatment gaps, services, workforce, stigma, literacy, and digital mental health. Evidence was grouped into epidemiological findings, social determinants, and public health gaps, with

quantitative synthesis limited to comparable studies.

Results: Total 34 records were included in the review. Common mental disorders in general population ranged from 5.7% to 7.8%, while higher symptom burdens were reported among adolescents (14%–15%), rural women (22.8%) and older adults living in urban slums (36%). Among higher-secondary and college students, depression ranged from 18.5% to 59.5%, anxiety from 9.9% to 66.8%, and stress was 41.1%. Postpartum depression ranged from 6.8% to 50.1%. Among patients with tuberculosis, depression ranged from 5% to 36% and anxiety from 10.5% to 31.3%, with a greater burden among patients with multidrug-resistant tuberculosis. Suicide rate in Gujarat was reported to be 12.4 per lakh. Determinants included gender, rural setting, socioeconomic disadvantage, low mental health literacy, academic stress, bullying, digital exposure, substance use, chronic illness, stigma and low social support. Key health-system challenges identified were lack of surveillance, shortages of mental health specialists, weak integration of mental health into primary healthcare, incomplete referral continuity, and limited evidence on mental health outcomes in Gujarat.

Conclusion: Mental disorders in Gujarat represent an important public health

priority. Integrated mental healthcare across primary care, educational institutions, maternal health, TB, NCD, geriatric and suicide-prevention services—supported by surveillance, trained health professionals, availability of psychiatric medicines, active referral and programme evaluation—is essential to reduce the treatment gap.

Keywords: mental disorders; adolescents; public mental health; treatment gap; mental health workforce

INTRODUCTION

Mental disorders are among the leading contributors to years lived with disability and are closely linked with impaired educational attainment, work participation, family functioning, social inclusion and quality of life. A recent systematic review by Dhiman and colleagues (2023) reported pooled prevalence estimates for seven psychiatric disorders in India, including depression (12.4%), alcohol use disorder (21.5%), anxiety disorder (11.6%), intellectual disability (1.0%), suicidal attempt/death (0.5%), and autism and bipolar disorder (0.3% each), respectively [1]. These findings indicate that mental health requires sustained public health attention rather than episodic, institution-centred care.

Gujarat has contributed substantially to mental health service development in India. The state has experience with psychiatric hospitals, district mental health services, community-based rehabilitation, the QualityRights approach, mental health helplines, task-sharing initiative under Atmiyata project, and recent integration of mental health into primary care through Ayushman Arogya Mandirs and TeleMANAS [2-5]. This has been reinforced by national legal and policy reforms, including the National Mental Health Policy, the Mental Healthcare Act 2017, and the Rights of Persons with Disabilities Act 2016, together with Ayushman Bharat's Comprehensive Primary Health Care guidelines for Health and

Wellness Centres, which collectively mandate rights-based, decentralized and primary-care-integrated mental health services [6–8]. However, the evidence on disease prevalence and social determinants of mental health in Gujarat remains limited and scattered.

A state-specific synthesis is essential to understand trends in mental disorders, local variations in disease patterns, and their social determinants. This review synthesizes evidence from Gujarat on prevalence, emerging trends, determinants, and health-system gaps to inform surveillance, prevention, early detection, treatment, referral, and rehabilitation.

MATERIALS & METHODS

Review design and framework: This review used a systematic review design with narrative synthesis and subgroup-specific quantitative synthesis where appropriate. The review followed PRISMA 2020 principles for reporting systematic reviews [9]. The review question was framed using PECO for prevalence and determinants and PCC for public health gaps. The population included individuals of any age or social group residing in Gujarat. The exposure or context was residence in Gujarat or availability of Gujarat-specific data. Outcomes included diagnosed mental disorders, screening-positive mental health symptoms, psychological distress, self-harm, suicide, substance use, service access, treatment gaps and system indicators.

Search strategy: Searches were planned for PubMed, Epistemonikos, BASE and Google Scholar for records published from January 2006 to December 2025. Search concepts included mental disorders, psychiatric morbidity, common mental disorders, depression, anxiety, psychosis, schizophrenia, bipolar disorder, substance use, suicide, self-harm, dementia, ADHD, psychological distress, Gujarat and major Gujarat districts/cities, combined with prevalence, incidence, determinants, risk factors, treatment gap, service access, public

health, health services, Tele-MANAS and District Mental Health Programme. Grey literature was searched from government, programme and public health sources, including WHO-AIMS, Comptroller and Auditor General of India audit reports (CAG audit reports) and Directorate General of Health Services / National Mental Health Programme (DGHS/NMHP), Gujarat health department documents, National Crime Records Bureau – Accidental Deaths and Suicides in India (NCRB ADSI) sources and community mental health programme reports.

Literature search approach: Literature search was carried out by two researcher (SS, AC)) and verified by senior reviewer (AP & MW). Any concerns were resolved through discussion.

Eligibility criteria: Studies were included if they were conducted in Gujarat or reported Gujarat-specific data; included community, school, college, workplace, clinical-comorbidity or defined vulnerable populations; and reported mental disorders, mental health symptoms, suicide, self-harm, substance use, dementia, neurodevelopmental outcomes, treatment gap or service-system indicators. Eligible designs included cross-sectional studies, population surveys, cohort or case-control studies, baseline data from intervention studies, mixed-methods studies, qualitative studies and official reports. Studies were excluded if they lacked Gujarat-specific data, measured only awareness or attitudes without a mental health outcome or system indicator, were case reports or opinion

pieces, used poorly described non-validated measures without extractable data, duplicated another dataset, or had insufficient data after full-text review.

Data extraction: Data extraction fields included author, year, location, population, sample size, design, sampling method, measurement tool, disorder/outcome, prevalence or estimate, determinants, public health gaps and implications. Evidence was categorized into epidemiological studies, social determinants and public health gaps. Tables were updated to reflect Gujarat-specific and recent evidence rather than only older national-level studies.

Evidence synthesis approach: Narrative synthesis was used as a primary synthesis approach. Quantitative synthesis was restricted to subgroups with reasonably comparable populations and outcome measures. Meta-analysis was not applied because prevalence estimates differed by setting, tool and threshold.

RESULT

A total of 34 records were reviewed for this systematic review [10–44]. The PRISMA 2020 flow diagram (Figure 1) presents the study selection process. Database searches identified 26,047 records, of which 7,257 remained after duplicate removal and 123 full-texts were assessed. After exclusions, 30 published studies were included. Grey-literature search identified 40 records, from which 4 reports were included. Overall, the review included 24 studies and 10 reports for narrative synthesis.

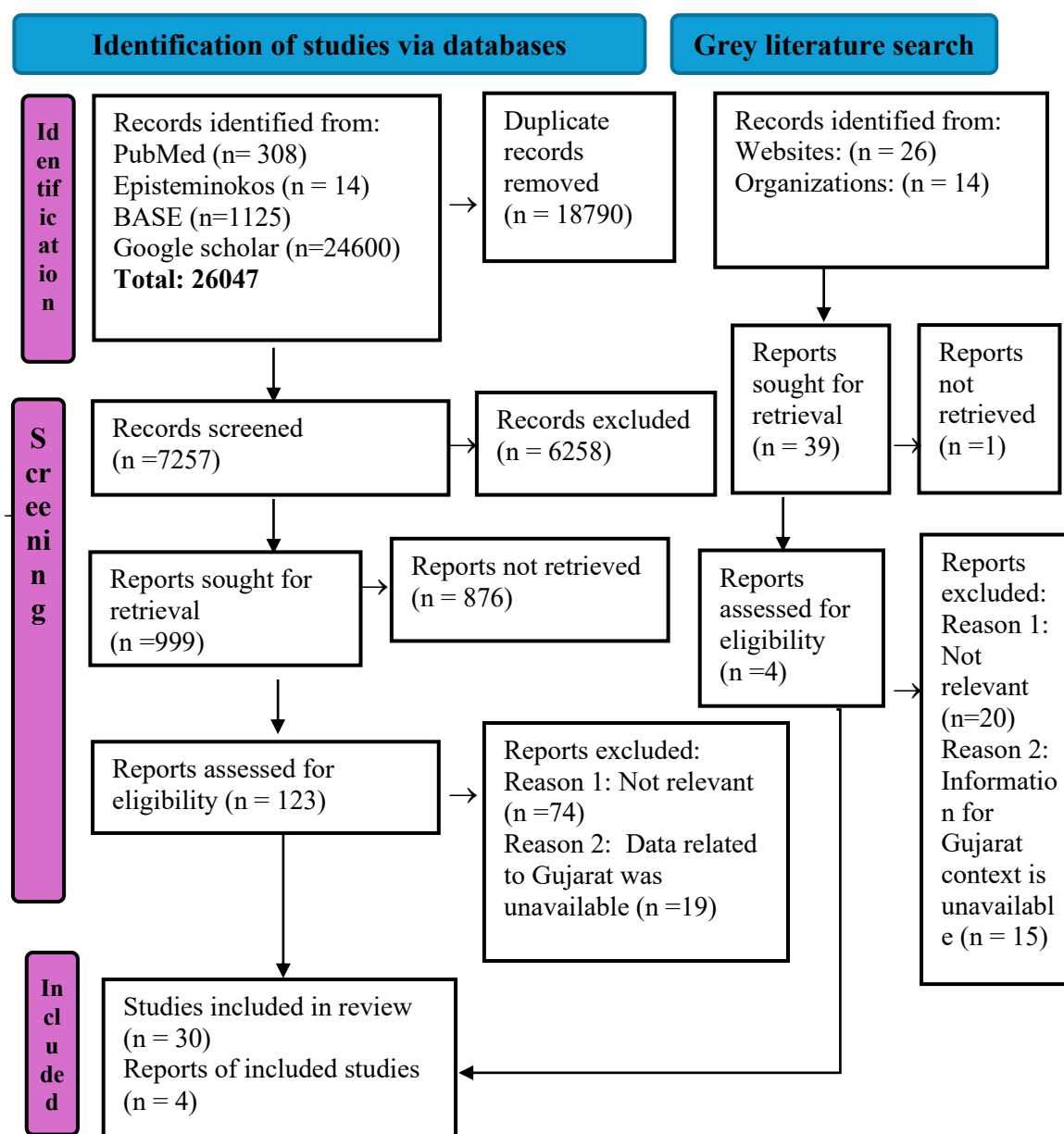


Figure 1. PRISMA flow diagram for the study

The summary of selected records is presented in [Supplementary Table 1](#) [Supplementary file is attached in the Abstract HTML page. [Click here for supplementary file](#)]. The included evidence comprised Gujarat-specific studies, national or multi-site studies reporting Gujarat-relevant data, and public health system documents. The Gujarat-based studies were reported from several districts and regions, including Anand, Sabarkantha, Rajkot, Mehsana, Jamnagar, Gandhinagar, Surat, Saurashtra, Ahmedabad, Valsad, tribal districts, and rural western Gujarat. The evidence covered diverse target populations,

including the general population, school-going adolescents, higher-secondary and undergraduate students, rural women, older adults, persons with tuberculosis and their household contacts, tribal communities, men who have sex with men and studies highlighting determinants health-system stakeholders. In addition, the review included qualitative and implementation studies, community intervention evidence, national population-based surveys, government reports, audit reports, and programme documents related to mental health services, workforce, PHC/CHC integration, Tele-MANAS, Ayushman

Arogya Mandirs, suicide surveillance, and public health system gaps.

The reviewed evidence was heterogeneous in terms of study design, population, setting, measurement tools, and outcomes. Most empirical studies were cross-sectional, while the evidence base also included one stepped-wedge cluster randomised controlled trial, one quasi-experimental postpartum mental wellness intervention, one qualitative public health study, national population-based survey evidence, and programme, legal, policy, audit and surveillance records. Validated screening and assessment tools used across studies included the Self-Reporting Questionnaire-20 (SRQ-20), Strengths and Difficulties Questionnaire (SDQ), Trauma Screening Questionnaire (TSQ), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), Depression Anxiety Stress Scale (DASS-21/42), Patient Health Questionnaire-9 (PHQ-9), Patient Health Questionnaire-4 (PHQ-4), Hamilton Anxiety Rating Scale (HAM-A), Edinburgh Postnatal Depression Scale (EPDS), Generalised Anxiety Disorder-7 (GAD-7), Smartphone Addiction Scale-Short Version (SAS-SV), Parenting Styles and Dimensions Questionnaire (PSDQ), and structured diagnostic tools used in national surveys such as MINI, MINI-Kid, GHQ and WMH-CIDI.

Prevalence of mental disorders and symptoms

The table 1 summarizes epidemiological studies reporting mental disorders or symptoms. The prevalence of mental disorders and symptoms varied substantially

by population, setting, screening or diagnostic tools and sampling method. Prevalence of common mental disorders (CMDs) ranged from 5.7% to 7.8% with higher SDQ scores among adolescents (14%–15%) while symptoms of depression prevalence ranged from 18.5% to 59.5%, anxiety from 9.9% to 66.8%, stress from 32.2% to 41.1% and smartphone addiction was reported among 64.6% of adolescents. Table 2 presents prevalence of mental disorders by subgroups. Higher secondary and college students witnessed depression ranging from 5% to 59.5%; anxiety: 10.5 to 31.3% and stress was reported to be 41%. Rural women had prevalence of CMD was 22.8% while depression among postpartum women ranged from as low as 6.8% to as high as 50%. Moreover, older adults from urban slums reported 36% prevalence of depression and low service utilization. TB patients reported depression ranged from 5% to 36% while anxiety ranged from 10.5 to 31.3% with consistently higher prevalence among patients than household contacts. Psychiatric distress was reported among 52.9% of men who have sex with men whereas death due to suicide in Gujarat was reported to be 12.4 per lakh, slightly higher than the national rate of 12.2 per lakh.

The evidence indicates substantial mental health needs across population groups, particularly among students, people affected by tuberculosis, older adults, sexual-minority populations and postpartum women. However, methodological heterogeneity, varied screening scales and study settings restrict generalizability.

Table 1. Prevalence of mental health conditions in Gujarat from 2006 to 2025

Author / year	Location	Target population	Design	Screening diagnostic tool or	Sample	Prevalence	Key finding
Gururaj et al., 2016 [10]	India; Gujarat included in NMHS	General population	National population-based cross-sectional survey	MINI, MINI-Kid, GHQ, SDQ and other structured tools	34,802 nationally	CMD prevalence: National: 10.6% Gujarat: 7.8%	Gujarat had higher rural than urban mental morbidity.
Dadwani and Thomas, 2014 [11]	Gujarat	General population	Community-based epidemiological survey	Pretested symptom questionnaire, clinical history and mental-status examination; diagnosis based on DSM-IV criteria.	1,600	CMD: 5.7%; Anxiety: 2.4%; Psychosis: 0.8%; Mood disorder: 2.1%	Disorder-specific findings indicated substantial unmet need and limited help-seeking.
Soni et al., 2016 [12]	Rural Gujarat	Women	Cross-sectional survey	SRQ-20	658	CMD symptoms: 22.8% screened positive	Most screen-positive women had not been diagnosed despite previous healthcare contact.
Nair et al., 2017 [13]	Anand district; school adolescents aged 13-17 years	School-going adolescents	School-based cross-sectional study	SDQ and TSQ	693	SDQ high score: 15.0%	Girls reported more emotional problems; rural adolescents had greater overall difficulties.
Puwar et al., 2018 [14]	Sabarkantha district; school adolescents	School-going adolescents	Cross-sectional study	SDQ	477	SDQ high score: 14.0%	Internalizing and externalizing difficulties supported school-based screening and referral.
Patel and Patel, 2020 [15]	Rajkot; school-going adolescents	School-going adolescents/students	Cross-sectional study	BAI and BDI	1,026	Moderate-to-severe Anxiety: 9.9%; Depression: 18.5%	Depression varied by age, sex and socioeconomic position.
Chokshi et al., 2021 [16]	Gujarat; twelfth-standard science and non-science students	Higher-secondary students	Comparative cross-sectional study	DASS-42	460	Depression: 24% Anxiety: 39% Stress: 32.2%	Science-stream students had higher depression and anxiety scores; academic and social factors were associated.
Chauhan et al., 2022 [17]	Rajkot; private-school higher-secondary science students	Higher-secondary science students	Cross-sectional prevalence study	Modified PHQ-9 for adolescents	1,219	Depression: 31.99%; Dysthymia: 20.59%; Suicidal risk: 1.64%	Burden was higher among girls and class 12 students.
Patel et	Mehsana district;	Undergraduate	Cross-sectional	DASS-21	1,330	Depression: 59.47%;	High symptom burden was

al., 2024 [18]	undergraduate students	students	study; convenience sampling			Anxiety: 66.84%; Stress: 41.05%	reported; non-probability sampling limits generalizability.
Patel U et al., 2023 [19]	Rajkot; private-school higher-secondary science students	Higher-secondary science students	Analytical cross-sectional study	Modified PHQ-9 for adolescents	1,219	Depression: 31.99%	This analysis used the same or a closely overlapping cohort as Chauhan et al., 2022 and should not be treated as an independent prevalence sample.
Yogesh et al., 2024 [20]	Gujarat; adolescents aged 15-19 years	School-going adolescents	Cross-sectional behavioural study	SAS-SV, PSDQ and DASS-21	560	Smartphone addiction: 64.6%	Longer use, urban residence, socioeconomic position and parenting style were associated with smartphone addiction.
Patel et al., 2024 [21]	Jamnagar; pulmonary TB patients and household contacts	Patients with TB and household contacts	Cross-sectional study	PHQ-9 and HAM-A	272 TB patients; 544 household contacts	Depression: 36.0% in patients and 24.8% in contacts; anxiety: 31.3% and 20.6%, respectively	Low income, stigma and weak social support predicted poorer mental health.
Chauhan et al., 2024 [22]	Gandhinagar and Surat; TB patients enrolled October 2021-July 2023	Patients with tuberculosis	Cross-sectional study	PHQ-4, Perceived TB Stigma Scale and risk-factor tool	7,056	Anxiety symptoms: 10.5%; Depressive symptoms: 5.0%	Perceived stigma and longer illness duration were associated with symptoms.
Murugan et al., 2024 [23]	Jamnagar; MDR-TB patients and household contacts	Patients with MDR-TB and household contacts	Sequential explanatory mixed-methods study	Structured depression/anxiety assessment; 30 qualitative interviews	403 patients; 403 household contacts	Patients: depression 37.5%, anxiety 45.2%; contacts: depression 20.1%, anxiety 25.1%	MDR-TB patients had a substantially greater psychological burden; stigma was prominent.
Gandhi et al., 2024 [24]	Urban slums of coastal Saurashtra	Adults aged 60 years or older	Community-based cross-sectional study	GDS-30 and Sheehan Disability Scale	450	Depression: 36%	Depression was common, while service use and programme awareness were low.
Prajapati et al., 2014 [26]	Ahmedabad city; NGO drop-in centres	Men who have sex with men	Descriptive cross-sectional study; purposive sampling	GHQ-28	410	Psychiatric distress: 52.9%	Anxiety/insomnia and severe-depression subscale scores were prominent.

Desai et al., 2012 [27]	Gujarat; women attending well-baby clinics	Women up to 1 year postpartum	Cross-sectional study	DSM-IV-TR criteria and predictive index of postnatal depression	200	Depression: 12.5%	Sociodemographic, obstetric and psychosocial factors were associated.
Patel et al., 2015 [28]	Anand district; teaching-hospital population	Postpartum women	Hospital-based cross-sectional study	Gujarati EPDS	134	Depression: 48.5%	Maternal, socioeconomic, family and obstetric characteristics were associated.
Bansal et al., 2018 [29]	Karamsad, Gujarat	Mothers in NICU and postnatal settings	Hospital-based survey	Gujarati EPDS	205	Depression: 23.4%	Screen-positive depression was associated with poorer newborn-care and feeding practices.
Modi et al., 2018 [30]	Ahmedabad, Gujarat	Postpartum women from tertiary-care hospital	Cross-sectional study	EPDS	250	Depression: 20.4%	The study examined prevalence and associated risk factors.
Amipara et al., 2020 [31]	Valsad district, Gujarat	Postpartum women attending Anganwadi centres	Community-based cross-sectional study	Gujarati EPDS	116	Depression: 6.8%	Depression was associated with family relationships, childcare support, literacy and infant-related factors.
Tanna and Unadkat, 2023 [32]	Gujarat	Women at 6 months postpartum	Cross-sectional study	EPDS	100	Depression: 23.2%	Socioeconomic and psychological correlates indicated continuing risk beyond early postpartum.
Surati et al., 2024 [33]	Jamnagar district, Gujarat	Women within 12 months postpartum	Cross-sectional study	EPDS and psychosocial measures	403	Depression: 50.1 (Mild: 28.8% Moderate: 16.6%; Severe: 4.7%)	Social support, breastfeeding attitudes and self-efficacy were associated.
Kansagra et al., 2025 [34]	Rajkot, Gujarat	Women 1-12 months postpartum from tertiary-care hospital	Cross-sectional study; systematic random sampling	EPDS	450	Depression: 14.2%	Maternal age, education, family type and obstetric history were associated.

Notes: BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; CMD, common mental disorder; DASS, Depression Anxiety Stress Scales; EPDS, Edinburgh Postnatal Depression Scale; GDS, Geriatric Depression Scale; GHQ, General Health Questionnaire; HAM-A, Hamilton Anxiety Rating Scale; MDR-TB, multidrug-resistant tuberculosis; MINI, Mini International Neuropsychiatric Interview; NICU, neonatal intensive care unit; NMHS, National Mental Health Survey; PHQ, Patient Health Questionnaire; PSDQ, Parenting Styles and Dimensions Questionnaire; SAS-SV, Smartphone Addiction Scale-Short Version; SDQ, Strengths and Difficulties Questionnaire; SRQ, Self-Reporting Questionnaire; TB, tuberculosis; TSQ, Trauma Screening Questionnaire; WMH-CIDI, World Mental Health Composite International Diagnostic Interview.

Table 2. Prevalence summary by subgroup and outcome

Subgroup	Mental Health Conditions	Prevalence (Lowest & Highest reported %)
General adult/Community	CMD	5.7% to 7.8%
	Suicide	12.4 per 1 lakh population
Women	CMD	22.8%
	Postpartum depression	6.8 to 50.1%
Elderly	Depression	36%
Adolescents	CMD	14% to 15%
	Smartphone addiction	64.6%
Higher-secondary/ College student	Depression	18.5% to 59.5%
	Anxiety	9.9%-66.8%
	Stress	41.1%
Drug-sensitive TB patients	Depression	5% to 36% among patients 24.8% among contacts
	Anxiety	10.5% to 31.3% among patients 20.6% among contacts
MDR-TB patients	Depression	37.5% among patients 20.1% among contacts
	Anxiety	45.2% among patients 25.1% among contacts
Men who have Sex with Men	Psychological distress	52.9%

Determinants and risk factors

The determinants of mental disorders in Gujarat are multi-level. They include individual, interpersonal, social, behavioural, biological, environmental, and health-system factors. Table 3 indicates that mental disorders in Gujarat are shaped by intersecting sociodemographic, behavioural, clinical, psychosocial, environmental, health-system and structural determinants. Risk is socially patterned, with adolescents, students, women, older adults, people affected by tuberculosis and chronic illness,

and rural, tribal and urban-slum communities experiencing distinct vulnerabilities. Substance use, poor sleep, problematic smartphone use, academic stress, stigma, bullying, family conflict, loneliness and inadequate social support further contribute to psychological distress. These risks are compounded by workforce shortages, urban concentration of services, limited professional counselling services, medicine unavailability, weak referral and follow-up systems, inadequate surveillance and insufficient preventive services.

Table 3. Social, behavioural, clinical and health-system determinants of mental disorders in Gujarat

Domain	Determinants identified	Affected groups
Sociodemographic	Age, gender, rurality, urban slum residence, socioeconomic status, education, hostel residence, academic stream and district disadvantage	Adolescents, students, women, older adults, rural and slum populations
Behavioural	Substance use, tobacco use, poor sleep, prolonged screen exposure, problematic smartphone use, delayed help-seeking	Students, adolescents, men, young adults
Biological/clinical	TB, MDR-TB, chronic disease, physical illness, disability, geriatric age, pain and functional limitation	TB patients, household contacts, older adults, chronic disease groups
Psychosocial	Stigma, low social support, bullying, peer problems, academic stress, family conflict, parenting style, relationship difficulties, loneliness	Adolescents, students, women, TB-affected families
Environmental	Rural service gaps, tribal and hard-to-reach contexts, urban slums, school environment, household stressors, limited privacy, stigma, and low literacy multiply the access to specialist	Rural, tribal and slum communities; adolescents
Health-system	Mental health services are not universal across PHCs and CHCs and urban concentration of mental health services, It is compounded by weak referral, medicine unavailability, shortage of trained mental health professionals, limited follow-up, inadequate surveillance, insufficient preventive services.	All groups, especially underserved populations

Emerging trends

The review identified several emerging trends that require programme-level attention. First, common mental disorders and distress are increasingly visible in non-specialist settings. Second, adolescent and student mental health is a recurring concern, with academic stress, peer problems,

bullying, digital exposure and family factors repeatedly identified. Third, mental health comorbidity with TB and drug-resistant TB is becoming an important evidence area. Fourth, geriatric depression and loneliness require integration with older-adult care. Table 4 summarizes these trends.

Table 4. Emerging mental health trends in Gujarat

Emerging trend (high risk)	Implications for Gujarat
High prevalence of common mental disorders and severe illness, more among women	Programme design should include promotion, prevention, early detection, treatment and rehabilitation.
Common mental disorders among adolescents	School and college mental health programmes should include counselling, teacher gatekeeping, peer support and anti-bullying pathways.
Digital behavioural risk	Digital wellbeing, sleep hygiene, parental guidance and responsible technology use should be included in adolescent programmes.
Common mental disorders among patients with TB and MDR-TB	Mental health screening and psychosocial care should be embedded within TB, MDR-TB and NCD services.
Depression among geriatric population	Integrate mental health with NPHCE, home-based care, chronic disease clinics and social participation programmes.
Postpartum / maternal mental health	Integrate PPD screening (e.g., EPDS) into antenatal, postnatal, Anganwadi/ICDS and Ayushman Arogya Mandir services, with referral pathways for at-risk mothers.

CMD: common mental disorder; AAM: Ayushman Arogya Mandir; NPHCE: National Programme for Health Care of the Elderly; MDR-TB: multidrug-resistant tuberculosis; EPDS: Edinburgh Postnatal Depression Scale.

Public health gaps

The evidence indicates that Gujarat's mental health system faces substantial gaps in district-level surveillance, treatment access, trained human resources, availability of essential psychotropic medicines, preventive services and integration of mental healthcare into primary care [3,4,38,41,44]. The high treatment gap documented in epidemiological evidence further demonstrates that many people with mental disorders do not receive appropriate care timely [45]. Important evidence gaps remain concerning referral pathways, mental health literacy, stigma-reduction interventions, digital mental health services, and the integration of maternal mental health screening with reproductive, maternal and child health services [28–35,38]. Gujarat-specific evidence on referral completion, counter-referral, continuity of care, equity, service quality and patient outcomes remains limited. Studies involving people affected by tuberculosis and tribal

communities indicate that stigma, limited awareness, inadequate social support and non-biomedical understandings of mental illness may delay help-seeking and reduce service utilization [23–25,38]. Although Tele-MANAS offers a 24-hour digital mental health support service [8], systematic state-level evaluation of its utilization, population reach, equity, quality, referral linkages and clinical outcomes is required. Available health-system assessments also indicate constraints related to specialist human resources, psychiatric beds, community health centre-level outpatient services and unfilled positions [4,41]. The 2006 WHO-AIMS assessment reported a total mental health workforce of approximately 1.43–1.44 personnel per 100,000 population, including very limited numbers of psychiatrists, psychologists, psychiatric social workers and psychiatric nurses [4]. It also reported approximately 1.34 psychiatric beds per 100,000 population, indicating limited inpatient

capacity relative to the expected burden of mental disorders [4]. As these estimates are historical, they should not be presented as the current workforce or bed availability

without more recent verified data. Table 5 summarizes the principal health-system gaps identified in the available evidence.

Table 5. Status of public health system to address mental health challenges in Gujarat

Indicator	Available estimate	Source
Total mental health human resources	1.43–1.44 per 100,000 population	4, 40
Psychiatrists	0.41 per 100,000 population	4, 40
Psychologists/clinical psychologists	0.19 per 100,000 population; limited availability in audited GMCs/DMHP units	40
Psychiatric social workers	0.20 per 100,000 population	40
Psychiatric nurses	0.44 per 100,000 population	40
Psychiatric beds	1.34 per 100,000	41
Hospital for Mental Health workforce	60%–90% shortage	41
DMHP workforce	18 psychiatrists, 27 clinical psychologists, 26 psychiatric social workers (2015–19); vacancies still persist	41
CHC psychiatric OPD	Approximately 46–54 of 129 CHCs	41
AAM integration	National tele-mental health and AAM-based mental health implementation underway	42, 43

HMH: Hospital for Mental Health; GMC: Government Medical College; AAM: Ayushman Arogya Mandir

DISCUSSION

This review demonstrates that mental disorders and psychological symptoms constitute an important but incompletely characterized public health burden in Gujarat. General-population estimates ranged from 5.7% in a community survey to 7.8% in the National Mental Health Survey, compared with the national NMHS estimate of 10.6% [10,11]. These differences should not be interpreted as evidence that Gujarat has a consistently lower burden than India overall. The available state-specific estimates are derived from a limited number of studies conducted in different periods using heterogeneous sampling designs, screening instruments and diagnostic criteria. Moreover, statewide estimates can conceal substantial variation by district, rurality, gender, age and socioeconomic position. The evidence therefore supports strengthening periodically repeated, district-representative surveillance rather than relying on a single prevalence estimate.

The findings indicate a markedly greater burden among several population subgroups. Rural women, adolescents, students, older adults, postpartum women,

sexual-minority populations, and people affected by tuberculosis or multidrug-resistant tuberculosis reported relatively high levels of psychological symptoms [12–36]. However, most subgroup estimates were based on screening instruments rather than structured diagnostic interviews. Accordingly, terms such as “screen-positive symptoms,” “probable depression” and “psychological distress” are more appropriate than confirmed psychiatric disorder. Direct comparisons are also limited by differences in thresholds, recall periods, study settings and population characteristics.

Adolescent and student mental health

Evidence from Anand, Sabarkantha, Rajkot and Mehsana indicates substantial emotional, behavioural, depressive, anxiety and stress-related symptoms among adolescents and students [13–19]. Girls, students experiencing academic difficulties and those exposed to adverse social or family circumstances appeared particularly vulnerable. The additional Gujarat study by Mangal et al., not included in the original manuscript, found that mental health problems among school-going adolescent

girls were associated with disturbed sleep, disruption of studies, parental education, maternal employment and type of school [45]. These findings reinforce the interpretation that adolescent mental health is shaped by intersecting educational, family, gender and behavioural factors rather than academic pressure alone. The evidence supports comprehensive school and college mental health programmes that combine universal mental health promotion with targeted support for students experiencing symptoms or functional impairment. Relevant components include mental health literacy, social-emotional learning, teacher gatekeeper training, accessible counselling, peer support, anti-bullying mechanisms, crisis-response protocols and referral linkages. Periodic screening may support early identification, but it should be undertaken only where informed consent or assent, confidentiality, clinical review, referral and follow-up can be assured. Screening without accessible support may identify distress without improving outcomes.

Digital behaviour has emerged as an additional concern. The observed associations between problematic smartphone use, parenting style and poorer mental well-being among adolescents require cautious interpretation because the evidence is cross-sectional and does not establish causality [18]. Excessive smartphone use may contribute to sleep disturbance, social comparison, family conflict and academic impairment, but distressed adolescents may also use smartphones more frequently as a coping strategy. Digital-wellbeing initiatives should therefore avoid exclusively restrictive approaches and instead promote healthy routines, sleep hygiene, media literacy, supportive parenting and timely psychosocial assistance.

Mental health among women and during the perinatal period

The study of rural women showed that a substantial proportion screened positive for

common mental disorder symptoms, while many remained undiagnosed despite previous contact with healthcare services [26]. This finding illustrates an important “contact–recognition gap”: attendance at a health facility does not necessarily result in identification or management of psychological distress. Women’s mental health was associated with education, stress, physical health and healthcare-related factors [26,27], suggesting that gendered social roles, limited autonomy, economic disadvantage, caregiving responsibilities and restricted access to appropriate services may operate together.

Gujarat-specific studies reported wide variation in postpartum depression, ranging from 6.8% to 50.1% [28–35]. Such heterogeneity may reflect differences in facility- and community-based recruitment, postpartum assessment periods, sample composition, EPDS thresholds and prevailing social circumstances. These estimates should consequently not be pooled or interpreted as a single state prevalence. Nevertheless, the repeated identification of depression across different districts indicates that maternal mental health is a persistent public health concern.

Recent evidence adds important dimensions to this interpretation. Rawal reported that awareness of postpartum mental health problems did not consistently translate into access to services; education, income, stigma and information barriers influenced service use [48]. A 2025 study among 250 lactating mothers in Tapi district reported high levels of probable depression and anxiety during the COVID-19 period, alongside concerns about infant health and breastfeeding [49]. These estimates require caution because data were collected in selected hospitals, the intended sample size was not achieved, symptoms were assessed retrospectively and the pandemic constituted an exceptional exposure context. A comparative study from Ahmedabad involving women undergoing first and repeat caesarean sections further found that depression, anxiety and stress were

associated with maternal, educational and obstetric circumstances, including emergency caesarean delivery and unplanned pregnancy [50].

Older adults and underserved communities

Depression among older adults was associated with disability, social disadvantage and limited service use [19–21]. The study from urban slums of coastal Saurashtra found a considerable burden of depressive symptoms alongside low awareness and healthcare utilization [21]. Recent qualitative evidence from older adults in tribal Chhotaudepur identified a mixture of accurate knowledge and misconceptions about common mental disorders, indicating that compassionate attitudes may coexist with low perceived priority, stigma and non-biomedical explanations [51]. This evidence suggests that service availability alone may be insufficient unless programmes address local explanatory models, communication barriers, social isolation, multimorbidity and functional limitations.

Mental health services for older adults should be integrated with geriatric, noncommunicable disease, disability and palliative-care services at Ayushman Arogya Mandirs. Community Health Officers, multipurpose health workers and Accredited Social Health Activists may support identification and follow-up, but screening should be accompanied by assessment of cognition, physical illness, medication use, disability, loneliness, elder abuse and suicide risk. Tribal and rural programmes should use local languages and culturally grounded communication developed with community members rather than applying urban awareness materials without adaptation.

Tuberculosis and mental health

Studies among people with tuberculosis and MDR-TB consistently indicate a substantial psychological burden [22–25]. Depression and anxiety were more common among

patients than household contacts, while poverty, stigma, weak social support and longer illness duration were associated with poorer mental health [23–25]. These relationships may be bidirectional. Tuberculosis and its treatment can produce distress, social disruption and financial strain, while depression and anxiety may reduce motivation, treatment adherence and engagement with services.

Mental health screening should therefore be embedded within tuberculosis care at diagnosis, during treatment and at clinically important transition points. PHQ-4, PHQ-9 or comparable validated tools may be used for initial identification, but positive results require clinical assessment and a documented response. Lay counselling, stigma reduction, adherence support and family engagement may be appropriate for mild or moderate symptoms, whereas suicidality, psychosis, severe depression, substance dependence and marked functional impairment require timely specialist referral. Implementation research should assess whether integrated screening improves treatment adherence, tuberculosis outcomes, psychological well-being and household functioning.

Community-based and primary-care responses

The Atmiyata stepped-wedge trial provides particularly relevant intervention evidence for Gujarat. It showed that trained community volunteers can contribute to psychosocial support for people experiencing common mental disorder symptoms in rural settings [39]. This supports task-sharing, especially where specialist services are scarce. Nevertheless, task-sharing should complement rather than substitute specialist care. Its effectiveness depends on competency-based training, defined scopes of practice, supervision, risk-management protocols, referral access, documentation and continuing quality assessment.

Ayushman Arogya Mandirs offer an operational platform for integrating mental

health with comprehensive primary healthcare [7,44]. Community Health Officers, nurses and medical officers could provide initial identification, psychological first aid, brief psychosocial interventions, treatment-adherence counselling and follow-up. Complex, severe, recurrent, psychotic, substance-related or high-risk presentations should be linked promptly with the District Mental Health Programme or specialist services. Implementation should prioritize continuity of care rather than counting screening encounters alone.

Administrative assessments indicate gaps in specialist personnel, psychiatric beds, medicine availability, primary-care integration and geographic distribution of services [40]. Because some workforce and infrastructure estimates originate from the 2006 WHO-AIMS assessment, they should not be presented as current without verification. Updated district-level mapping is required to document sanctioned and filled posts, outpatient coverage, medicine availability, waiting time, referral completion, hospitalization capacity and rehabilitation services.

Tele-MANAS provides an important 24-hour platform for counselling, triage and referral [8]. However, programme availability should not be equated with demonstrated effectiveness. Gujarat-specific evaluation should examine awareness, utilization, rural and tribal reach, gender and socioeconomic equity, language accessibility, repeat contacts, confidentiality, referral completion, emergency escalation and clinical outcomes. Digital services should complement accessible face-to-face care and should not widen inequities affecting people with limited connectivity, digital literacy, privacy or control over telephone access.

Policy and research implications

A state public mental health strategy should connect surveillance, prevention, early identification, treatment, rehabilitation and suicide prevention. Priority actions include representative district-level surveys; routine

but ethically governed outcome monitoring; integration with maternal health, tuberculosis, noncommunicable disease, geriatric and school-health services; uninterrupted essential psychotropic medicines; workforce development; functional referral as well as counter-referral; and community-based stigma reduction. Suicide prevention requires coordinated surveillance, gatekeeper training, responsible media reporting, restriction of access to common means, emergency response and postvention support. Future research should use representative samples, use of validated instruments and, where feasible, structured diagnostic interviews. Longitudinal studies are needed to establish temporal relationships between social determinants and mental health outcomes. Intervention studies should report reach, fidelity, acceptability, adverse effects, costs, equity and sustained outcomes.

Strengths and limitations

This review provides a focused synthesis of Gujarat-specific evidence across epidemiological burden, determinants, vulnerable populations, interventions and health-system gaps. It distinguishes screening-positive symptoms from diagnosed disorders and avoids statistically pooling clinically and methodologically heterogeneous populations. Nevertheless, most included studies were cross-sectional, several used facility-based or non-probability samples, and relatively few employed diagnostic interviews. Geographic coverage was uneven, with limited evidence from several districts and populations. Publication and database restrictions may have excluded locally relevant reports, while the inclusion of recent 2025 studies mean that some findings remain preliminary. The evidence should therefore be interpreted as a structured account of the available literature, not a definitive estimate of Gujarat's statewide mental health burden.

CONCLUSION

Mental disorders in Gujarat represent an important public health priority. The available evidence shows limited epidemiological studies, however, highlighted substantial burden among adolescents, students, rural women, postpartum women, older adults, and TB/MDR-TB-affected populations. Determinants are multidimensional, involving social disadvantage, academic stress, stigma, low support, digital exposure, chronic disease and health-system gaps. A comprehensive public mental health response is required that integrates surveillance, prevention, early identification, primary-care treatment, task-sharing, school and college mental health, maternal mental health within reproductive and child health services, co-morbid mental conditions among patients with NCDs and TB/MDR-TB, suicide prevention, community-led psychosocial support, digital mental health and rehabilitation. Future progress will depend on district-level surveillance, trained workforce, sustained financing, medicine availability, referral continuity and systematic programme evaluation. A mental health promotion strategy is essential for reducing the treatment gap and improving mental health outcomes across Gujarat.

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