

Health Profile and Morbidity Pattern Among Scheduled Caste and Scheduled Tribe Attendees of a Mobile Health care programme in Navi Mumbai: A Retrospective Record Based Study (2024-2026)

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ABSTRACT

Background: Scheduled Caste (SC) and Scheduled Tribe (ST) communities in India remain socio-economically disadvantaged, with limited access to formal healthcare. Under the Ministry of AYUSH Scheduled Castes Sub-Plan/Tribal Sub-Plan (SCSP/TSP), the Central Council for Research in Unani Medicine delivers mobile outpatient services, but disease-wise morbidity from such programmes is rarely analysed.

Objective: To describe the morbidity pattern, sex-wise distribution and utilisation indicators of an SCSP/TSP mobile healthcare programme in Navi Mumbai, Maharashtra, and to compare them between 2024-25 and 2025-26.

Methods: A descriptive, retrospective, record-based analysis of annual programme reports from the Regional Research Institute of Unani Medicine covering weekly outreach clinics at five main spots. Utilisation indicators, spot-wise attendance and disease-wise frequencies were summarized descriptively.

Results: Outreach visits remained stable (223 vs 231; +3.6%), whereas total clinical attendance fell from 19,568 to 9,951 (–49.1%). This decline was attributable to the discontinuation of Turbe Colony, which contributed 57.9% of 2024-25 attendance; attendance at the four continuing spots rose by 2.6%. The new-to-follow-up ratio was similar (60.3:39.7 vs 58.1:41.9). Diabetes mellitus was the leading diagnosis in both years (778 and 773 cases). Gastrointestinal disorders formed the largest category (34.2% and 36.3% of leading morbidities), followed by musculoskeletal conditions (28.3% and 22.1%).

Males predominated slightly for most conditions, except osteoporosis and whooping cough.

Conclusion: Morbidity was dominated by diabetes, gastrointestinal and musculoskeletal disorders. Aggregate attendance was highly sensitive to changes in site composition, supporting site-level monitoring. Chronic-disease follow-up, occupational health advice and water and food hygiene education should be prioritized.

Keywords: Scheduled Castes Sub-Plan; Tribal Sub-Plan; mobile healthcare; Unani medicine; morbidity pattern; diabetes mellitus; Navi Mumbai.

INTRODUCTION

In India, Scheduled Castes (SC) and Scheduled Tribes (ST) together constitute a substantial share of the national population while remaining among its most socio-economically disadvantaged groups. In the present era, the SC are referred to as Dalit, meaning “broken” or “dispersed”. As per Census 2011, the SC population constituted 16.6%. The SC make up 18.5% of the rural population and 12.6% of the urban population, spread across 705 notified ethnic groups in about 30 states and union territories [1]. Comparable analyses of SC populations in Delhi, Uttar Pradesh and Bihar have similarly documented low literacy, unskilled occupations and limited access to formal healthcare among these communities [2].

In India, Scheduled Castes (SCs) and Scheduled Tribes (STs) together constitute a substantial share of the national population while continuing to experience significant socio-economic disadvantages. The term *Dalit*, meaning “broken” or “oppressed,” is widely used as a self-identifying and socio-political term by many members of communities historically subjected to caste-based discrimination.

According to the Census of India 2011, the Scheduled Caste population was approximately 201.4 million, constituting 16.6% of the total population of India. Scheduled Castes accounted for 18.5% of the rural population and 12.6% of the urban population. In contrast, the figure of 705 notified ethnic groups distributed across about 30 States and Union Territories pertains to Scheduled Tribes and should therefore not be attributed to Scheduled Castes. Comparable analyses of SC populations in Delhi, Uttar Pradesh and Bihar have documented disparities in literacy, occupational status and access to formal healthcare among these communities [2-4].

To bridge this gap, the Ministry of AYUSH, Government of India, has implemented the Scheduled Castes Sub-Plan (SCSP) since 1980, while the Tribal Sub-Plan (TSP) for tribal areas has been in force since 1974. The main objective of the scheme is to screen the SC and ST population and to create health awareness (Raza, 2020). Under this scheme, the Central Council for Research in Unani Medicine (CCRUM) and its regional research institutes have conducted mobile healthcare programmes that bring free Unani outpatient consultations, medicines and health education to SC/ST-dominated villages.

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Published accounts of this programme from Delhi [2-4] and Navi Mumbai [5], have documented the socio-demographic profile of the populations served. The Bihar report described the disease clustering profile of the population served but did not analyse disease-wise morbidity. Such a year-wise disease analysis is of great practical value. National survey data indicate that metabolic non-communicable diseases have become one of the fastest-rising health burdens in India; the ICMR-INDIAB national cross-sectional study estimated a diabetes prevalence of 11.4% among adults, with many cases remaining undiagnosed [6]. At the same time, there is a remarkably high burden of musculoskeletal pain, especially back pain, in India's rural, manual labour-dependent population. A pan-Indian meta-analysis estimated the point, annual and lifetime prevalence of low back pain at 48%, 51% and 66%, respectively, with the highest burden among women and rural residents [7], and a 12-month prevalence of back pain of 76% was recorded in rural Maharashtra [8]. However, no analysis of the disease pattern recorded by a mobile OPD programme has been reported for this population.

The present study was conducted (i) to describe the disease-wise morbidity pattern, including sex-wise distribution, recorded under a mobile healthcare programme at five SC/ST-dominated spots in Navi Mumbai, Maharashtra; (ii) to describe key healthcare utilization indicators, namely outreach visits, new and old/follow-up patients and clinical attendance, for 2024-25 and 2025-26; and (iii) to compare these indicators between the two years and across spots.

METHODOLOGY

Study design and setting

This was a descriptive, retrospective, record-based analysis of secondary programme monitoring data pertaining to the mobile healthcare programme conducted under the SCSP/TSP scheme of the Ministry of AYUSH and implemented by the Regional Research Institute of Unani Medicine (under CCRUM), Navi Mumbai (Thane and Raigad districts), Maharashtra. The programme conducted weekly outreach outpatient department (OPD) clinics at five recurring project spots; two annual cycles were studied. In 2024-25, the five main recurring spots were Turbe Colony, Taloja, Digha, Airoli and Ghansoli. In 2025-26, Turbe Colony was discontinued as a main spot and replaced by Mansarovar, so the five spots were Digha, Ghansoli, Taloja, Airoli and Mansarovar.

This was a descriptive, retrospective, record-based analysis of secondary programme-monitoring data generated through the mobile healthcare programme implemented under the Scheduled Caste Sub-Plan (SCSP)/Tribal Sub-Plan (TSP) scheme of the Ministry of AYUSH by the Regional Research Institute of Unani Medicine (RRIUM), under the Central Council for Research in Unani Medicine (CCRUM), in Navi Mumbai, Maharashtra. The programme provided weekly outreach outpatient department (OPD) services at designated recurring project sites located in Thane and Raigad districts. The present analysis covered two annual programme cycles (2024-25 and 2025-26). During 2024-25, the five principal recurring outreach sites were Turbhe Colony, Taloja, Digha, Airoli and Ghansoli. Of these, Airoli, Ghansoli, Digha and Turbhe are located in Thane district, whereas Taloja is located in Raigad district. During 2025-26, Turbhe Colony was discontinued as a principal recurring site and replaced by Mansarovar (Kamothe), located in Raigad district; consequently, the five principal sites during this cycle were Digha, Ghansoli, Taloja, Airoli and Mansarovar (Kamothe).

The district classification was based on the administrative location of the respective project sites rather than the broader Navi Mumbai urban area, which extends across parts of Thane and Raigad districts.

Data source and collection

Data from the annual reports for 2024-25 and 2025-26 were abstracted and compiled. The underlying information had been recorded prospectively at each OPD encounter using a structured case record proforma, consistent with the data collection approach described in comparable SCSP mobile healthcare publications [2-5]. At each visit, the physician recorded the beneficiary's sex, visit type (new or old/follow-up), outreach spot and presenting diagnosis, coded to a standard disease list used across the programme. All patients presenting to the mobile OPD during the study period were included. Informed verbal consent was obtained from all attendees before examination and treatment, as per the institute's standard operating protocol for the mobile healthcare programme.

Variables and outcome measures

The following programme indicators were extracted for each year: number of outreach visits, number of new patients, number of old/follow-up patients, total clinical attendance, area-wise clinical attendance and disease-wise frequency by sex (male/female). Here, 'clinical attendance' denotes the cumulative count of individual OPD visit encounters over the year and is not equivalent to the number of unique persons registered, which may be reported separately as 'population covered'.

Data analysis

All extracted data were tabulated in a spreadsheet and summarised using descriptive statistics (frequencies and percentages), and simple proportional (percentage) changes were compared between the two annual cycles and across implementation spots. As the dataset comprised aggregate counts rather than individual-level records, inferential statistical testing (e.g. chi-square comparison of proportions) could not be validly performed; this is acknowledged as a methodological limitation. Additionally, disease conditions were grouped into broad clinical categories (metabolic, musculoskeletal, respiratory, gastrointestinal, dermatological and haematological) for descriptive comparison, and the figures were generated using Python (Matplotlib, v3.10).

Ethical considerations

Under the Ministry of AYUSH's SCSP/TSP scheme, the mobile healthcare programme delivers routine public health services, and verbal informed consent was obtained from all attendees prior to clinical examination, consistent with the ethical approach reported for comparable SCSP programme analyses [2,4].

RESULTS

Programme utilisation was assessed using the indicators consistently documented in the programme monitoring records, including number of outreach visits, new patients, follow-up patients, total clinical attendance, disease/morbidity records and referrals. Total clinical attendance was derived by summing new and old/follow-up patients.

The term “population covered” was not used as an analytical denominator because its definition was not consistent across the two annual programme reports; accordingly, this variable was excluded from comparative analysis to avoid conflating population coverage with patient attendance.

Programme Utilization Indicators

Table 1 summarizes the programme’s utilization indicators for the two annual cycles. The number of outreach visits at the five main spots was almost unchanged between the years (223 in 2024-25 vs 231 in 2025-26, a 3.6% increase). Total clinical attendance fell markedly from 19,568 in 2024-25 to 9,951 in 2025-26 (a 49.1% decline). The decline was not uniform across sites. The ratio of new to old/follow-up attendance was broadly similar across the two years (approximately 60:40 in 2024-25 and 58:42 in 2025-26), indicating a consistent proportion of repeat/chronic disease follow-up visits within the programmer's overall caseload.

Table 1: Programme utilization indicators at the five principal recurring outreach sites during 2024-25 and 2025-26

Indicator	2024-25	2025-26
No. of outreach visits	223	231
New patients	11,793	5,781
Old/follow-up patients	7,775	4,170
Total clinical attendance	19,568	9,951
New : old/follow-up ratio	60.3% : 39.7%	58.1% : 41.9%
Disease/morbidity records	9,652	Not separately reported
Referrals	1,048	Not separately reported
No. of principal recurring sites	5	5

Note: Total clinical attendance was calculated as the sum of new and old/follow-up patients. The indicator “population covered” was not included because the corresponding values reported for the two programme years (3,329 in 2024-25 and 9,951 in 2025-26) were not consistently defined in relation to clinical attendance and therefore were not considered directly comparable.

The analysis was restricted to indicators with a clearly identifiable denominator or count in the programme monitoring records.

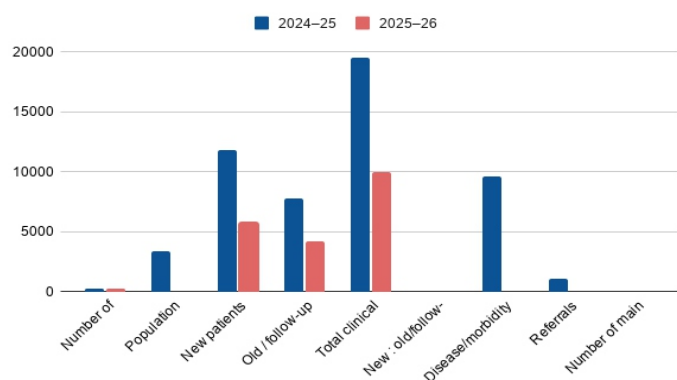


Figure 1. Programme utilization indicators, five main spots, 2024-25 vs 2025-26

Area-wise distribution of attendance

In 2024-25, Turbe Colony accounted for 11,327 of 19,568 total attendances (57.9%), far more than any other spot (Table 2a; Figure 2). The remaining four spots (Taloja, Digha, Airoli and Ghansoli) together accounted for 8,241 attendances.

In 2025-26, Turbe Colony was discontinued as a main spot and replaced by Mansarovar (1,494 attendances), while the same four continuing spots recorded 8,457 attendances (Table 2b; Figure 3), a change of +2.6% from 2024-25. Thus, the year-on-year change in aggregate programme attendance was driven largely by the change in spot composition.

Table 2a: Area-wise clinical attendance, five main spots, 2024-25

Spot (2024-25)	New	Old/F-Up	Total	Rank
Turbe Colony	6,922	4,405	11,327	1
Taloja	1,316	960	2,276	2
Digha	1,290	911	2,201	3
Airoli	1,226	841	2,067	4
Ghansoli	1,039	658	1,697	5
Total	11,793	7,775	19,568	-

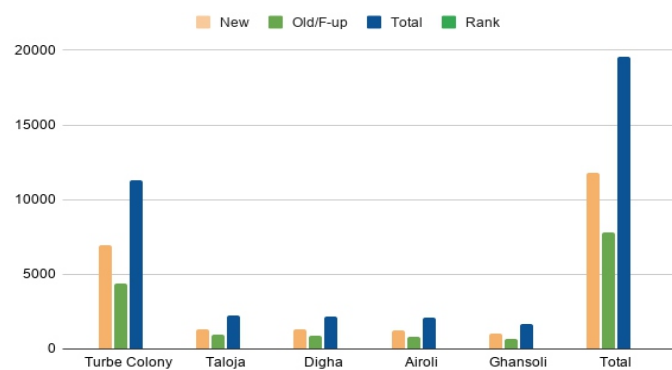


Figure 2. Area-wise clinical attendance, five main spots, 2024-25

Table 2b: Area-wise population/clinical attendance, five main spots, 2025-26

Spot	Population/Clinical Attendance	Rank
Digha	2,670	1
Ghansoli	2,393	2
Taloja	1,797	3
Airoli	1,597	4
Mansarovar	1,494	5
Total	9,951	-

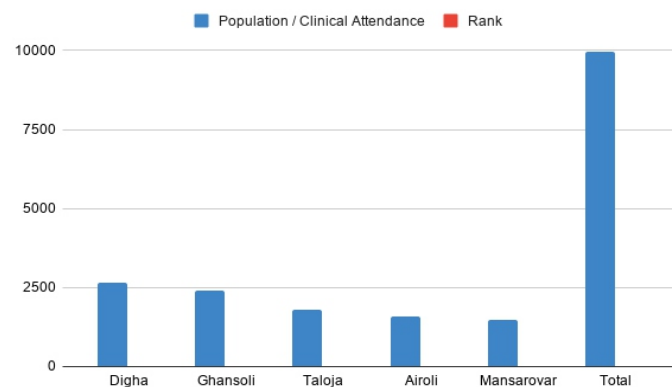


Figure 3. Area-wise population/clinical attendance, five main spots, 2025-26

Table 3: Ten most frequently reported morbidities, 2025-26

Disease (2025-26)	Total	Male	Female	New	Old/F-up
Diabetes mellitus	773	409	364	396	377
Backache	579	301	278	304	275
Gastralgia	510	292	217	270	240
Low backache	495	253	242	256	239
Gastritis	483	272	211	266	217
Cough/bronchitis	437	-	-	-	-
Ringworm/dermatophytosis	430	-	-	-	-
Gastric debility	408	-	-	-	-
Nazla (acute coryza)	386	-	-	-	-
Piles/haemorrhoids	366	-	-	-	-

Table 4: Fifteen most frequently reported morbidities with sex-wise distribution, 2024-25

Disease (2024-25)	Total	Male	Female	% Male	% of top 15
Diabetes mellitus	778	413	365	53.1	12.5
Backache	584	310	274	53.1	9.4
Gastralgia	518	296	222	57.1	8.3
Low backache	507	263	244	51.9	8.1
Gastritis	491	282	209	57.4	7.9
Cough/bronchitis	451	241	210	53.4	7.2
Gastric debility	418	210	208	50.2	6.7
Ringworm/dermatophytosis	411	218	193	53.0	6.6
Osteoporosis	371	176	195	47.4	5.9
Piles/haemorrhoids	359	234	125	65.2	5.8
Constipation	347	196	151	56.5	5.6
Polyarthrititis	302	153	149	50.7	4.8
Anaemia	247	147	100	59.5	4.0
Whooping cough/pertussis	238	101	137	42.4	3.8
Bronchial asthma	219	118	101	53.9	3.5

Figure 4: Ten most frequently reported morbidities, 2025-26

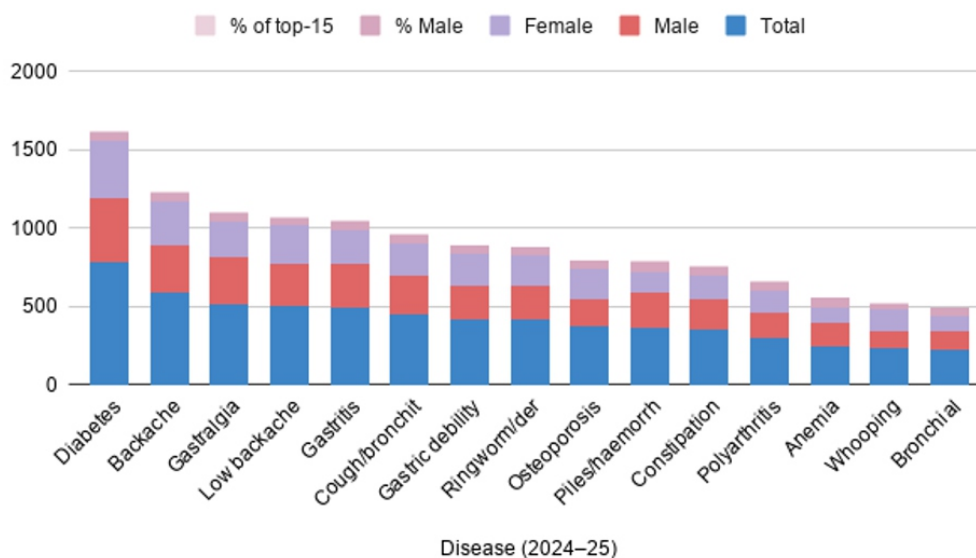


Figure 5: Sex wise distribution of the fifteen leading morbidities, 2024-25

Table 5: Grouped clinical categories of the leading recorded morbidities, by year

Clinical category	2024-25 (top 15) n (%)	2025-26 (top 10) n (%)	Constituent diagnoses
Gastrointestinal	2,133 (34.2%)	1,767 (36.3%)	Gastralgia, gastritis, gastric debility, constipation, piles
Musculoskeletal	1,764 (28.3%)	1,074 (22.1%)	Backache, low backache, polyarthrititis, osteoporosis
Metabolic	778 (12.5%)	773 (15.9%)	Diabetes mellitus
Respiratory	908 (14.5%)	437 (9.0%)	Cough/bronchitis, bronchial asthma, whooping cough
Dermatological	411 (6.6%)	430 (8.8%)	Ringworm
Upper respiratory / ENT	-	386 (7.9%)	Nazla (acute coryza)
Haematological	247 (4.0%)	-	Anaemia
Total (ranked conditions)	6,241	4,867	-

DISCUSSION

This two-year analysis of routine data from a mobile healthcare programme serving SC/ST populations in Navi Mumbai found a morbidity profile dominated by metabolic, musculoskeletal and gastrointestinal disorders, a stable pattern of new to follow-up attendance, and a marked sensitivity of aggregate utilization figures to changes in the composition of implementation spots. Diabetes mellitus was the single leading diagnosis in both years, which is noteworthy against the backdrop of national surveillance data. The ICMR-INDIAB national cross-sectional study estimated a diabetes prevalence of 11.4% among Indian adults, with a substantial proportion of cases undiagnosed [6,9]. The high diabetes-related attendance recorded in the present programme likely reflects both a genuine and a previously unrecognised metabolic disease burden. Moreover, as a chronic condition, diabetes generates more follow-up attendances than acute self-limiting illnesses, consistent with the near-equal split between new and old/follow-up diabetes attendances observed

here (Table 3).

Backache and low backache together constituted the second-largest diagnostic cluster in both years, consistent with community-based evidence from India, including Maharashtra. A pan-Indian systematic review and meta-analysis estimated the point, annual and lifetime prevalence of low back pain at 48%, 51% and 66%, respectively, with the highest burden among women, rural residents and elementary workers [7]. A community-based study in rural Gadchiroli, Maharashtra, reported a 12-month prevalence of back pain of 76% (Bang et al., 2021). Although clinic attendance cannot be equated with true population prevalence, these data suggest that musculoskeletal pain is a leading cause of OPD attendance in such communities.

Gastrointestinal disorders (gastralgia, gastritis, constipation, gastric debility and piles) emerged as the most common disease category in both years, accounting for more than one-third of the leading recorded morbidities.

This finding is similar to that of a model-based clustering study in Bihar, which identified a prominent cluster comprising gastralgia, backache, piles and constipation among SCSP mobile OPD attendees, mostly during winter; the authors attributed this to cold-induced alterations in gut motility, low fluid intake, and seasonal dietary and lifestyle changes within the scheduled caste population [3]. The burden of diet- and hygiene-related gastrointestinal illness in Maharashtra may therefore represent a widespread feature of SC/ST mobile OPD caseloads across regions, highlighting the need to integrate targeted water and food hygiene education as a standard programme component.

Regarding sex distribution, attendance in the present study showed a slight male predominance for most conditions, except osteoporosis and whooping cough/pertussis. This pattern differs from that reported in an Aligarh-based Scheduled Caste Sub-Plan (SCSP) mobile healthcare study by Akhtar et al. (2024), in which females constituted 54.44% of attendees, males 34.74%, and children 10.74%, indicating that the reported female and male percentages should not be interpreted as complementary sex categories. In contrast, a previous SCSP mobile healthcare report from Navi Mumbai documented male predominance, with males accounting for 67.5% of attendees [5]. These findings indicate variation in the demographic profile of mobile OPD users across programme settings and underscore that sex distribution may vary according to the population served, outreach location, and clinical conditions represented. The higher female attendance observed for osteoporosis in the present study is consistent with the established increase in osteoporosis risk associated with post-menopausal bone loss. The higher female attendance for whooping cough/pertussis should, however, be interpreted cautiously, as the available programme data do not establish whether this reflects biological susceptibility, caregiver attendance with affected children, or differences in healthcare-seeking behaviour.

From an operational perspective, the principal programme management finding is the marked disparity between outreach visit frequency, which remained nearly constant across the two years (223 vs 231), and total clinical attendance, which fell by almost half (19,568 vs 9,951). Site-disaggregated analysis revealed that the apparent reduction in attendance was largely due to a change in site selection rather than a true decline in health-seeking behaviour, as attendance across the four continuously operating locations changed by only +2.6%. This observation has important implications for annual programme evaluation: aggregate programme totals can be misleading when the underlying sites change. To assess utilisation trends accurately and to guide decisions on site retention and replacement, routine monitoring should track key performance indicators at the individual site level alongside overall programme totals.

LIMITATIONS

The study is subject to several limitations inherent to secondary analysis of aggregated, routinely collected administrative data. First, because the available dataset reflects clinical attendance rather than community-wide prevalence and lacks age and complete sex stratification, exact incidence or prevalence rates could not be derived; attendance numbers reflect both healthcare-seeking behaviour and true disease frequency. Second, the change in mobile spot locations between 2024-25 (which included Turbe Colony) and 2025-26 (which substituted Mansarovar) restricts the direct year-on-year comparability of overall totals.

Third, an inconsistency exists in the 2024-25 baseline records: the reported total population covered (3,329) is smaller than the recorded number of new patients (11,793). This disparity, likely arising from differing definitions, could not be reconciled retrospectively, and the figures are presented without adjustment. Fourth, because the data provided were solely aggregate diagnostic counts rather than individual health records, inferential statistical analyses (such as chi-square evaluation of sex/year associations) could not be conducted, limiting the study to a descriptive presentation. Fifth, detailed breakdown by sex and patient type (new vs follow-up) was restricted to the top five conditions (2025-26) or the top fifteen conditions (2024-25), as reported in the original documents. Additionally, key sociodemographic details, including age, income, education and occupation, were unavailable for linkage with diagnoses. Finally, the absence of an unexposed control group precludes causal inferences regarding the health impact of the mobile healthcare programme on the target population.

CONCLUSION

Over two consecutive annual operational cycles, the mobile healthcare programme serving scheduled caste and scheduled tribe communities in Navi Mumbai, Maharashtra, recorded a consistent disease burden dominated by diabetes mellitus, gastrointestinal conditions and musculoskeletal disorders. This morbidity pattern aligns closely with the disease clustering and prevalence data documented by similar SCSP programmes and field studies in Maharashtra and other regions of India. The ratio of new to follow-up consultations remained consistent over time, pointing to chronic disease management alongside acute care delivery. However, attendance metrics were sensitive to changes in service delivery locations, highlighting the need for site-level monitoring to ensure accurate interpretation of service utilisation trends. Three key areas for programme enhancement are: establishing dedicated adherence and follow-up strategies for diabetes and other chronic non-communicable conditions; offering occupational health advice to agricultural and manual labourers to address musculoskeletal ailments; and delivering targeted educational interventions on water and food hygiene to reduce gastrointestinal illness. Future research should incorporate population-level denominators and link individual demographic factors such as age, sex, education, occupation and income with diagnostic data to estimate true disease prevalence and identify the core drivers of health outcomes in this population.

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