BHARATI INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH & DEVELOPMENT (BIJMRD)

(Open Access Peer-Reviewed International Journal)

DOI Link : https://doi.org/10.70798/Bijmrd/04100009

Available Online: www.bijmrd.com | BIJMRD Volume: 4 | Issue: 10 | October 2026 | e-ISSN: 2584-1890

Organisation and Implementation of a Multidisciplinary University-Led Community Health Camp in Daramdin, Sikkim, India: A Descriptive Report

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Abstract:.

Background: *Universities in rural and hilly regions can serve as platforms for delivering preventive healthcare while providing healthscience students with supervised community experience. Access to basic screening, consultation and allied health services remains limited in many rural areas of Sikkim.*

Objective: *To describe the planning, organization, service delivery and student involvement of a one-day multidisciplinary community health camp conducted by Mahatma Gandhi University (MGU), Daramdin, Sikkim, on August 22, 2026 under the theme "A Step Towards a Healthier Community".*

Methods: *This descriptive programme report concerns a one-day multidisciplinary community health camp held at Mahatma Gandhi University, Daramdin, Sikkim, on 22 August 2026. Registration, screening, consultation, laboratory testing, dental and eye screening, physiotherapy, and pharmacy services were offered. The revised manuscript is set to a total of 500 participants; all counts and percentages must be verified against the original station registers before submission.*

Results: *The camp involved multidisciplinary screening, consultation and allied health services, with pharmacy dispensing and counselling and supervised participation by healthscience students. Final service-specific counts, screening findings and referral outcomes should be reported only after reconciliation with the original camp records.*

Conclusion: *A university-led multidisciplinary camp built around unique-ID registration, a defined patient-flow pathway and supervised student participation was feasible in a rural hill setting. Screening results were treated as indicators needing confirmation, not diagnoses. Systematic follow-up of referred participants and fuller outcome documentation would strengthen future camps.*

Keywords*: community health camp; preventive healthcare; health screening; student-assisted services; Sikkim; university social responsibility.*

1. Introduction: Regular health screening, timely medical consultation, and preventive health education play an important role in identifying health problems at an early stage and encouraging healthier lifestyles. Non-communicable diseases (NCDs), such as hypertension and diabetes, and nutritional deficiencies, particularly anaemia, often remain undiagnosed until complications develop, especially in areas where access to diagnostic and specialist healthcare services is limited. The ICMR-INDIAB national cross-sectional study,

which covered 113,043 adults across Indian states and union territories, estimated the prevalence of diabetes at 11.4%, prediabetes at 15.3%, and hypertension at 35.5%. The study highlighted that the burden of metabolic non-communicable diseases in India is considerably higher than previously estimated (Anjana et al., 2023).

An earlier systematic review and meta-analysis by Anchala et al. (2014) also reported considerable gaps in hypertension awareness, treatment, and control among the Indian population. Similarly, anaemia remains a significant public health concern in the Himalayan state of Sikkim. According to the National Family Health Survey-5 (NFHS-5), approximately 42% of women and 19% of men were anaemic in the state during the 2019–2021 survey period (International Institute for Population Sciences [IIPS] & ICF, 2021). At the national level, NFHS-5 also identified anaemia as a major nutritional and public health challenge, particularly among women. Therefore, community-based health screening camps that include blood pressure measurement, blood glucose testing, and haemoglobin assessment can help identify individuals with previously undiagnosed health conditions and encourage timely medical intervention.

Educational institutions can make meaningful contributions to community health by integrating healthcare services with experiential learning opportunities. Health camps organised by universities provide students with supervised exposure to patient interaction, basic health assessment, measurement techniques, documentation, communication, and teamwork while simultaneously offering nearby communities access to essential healthcare services. Research on student-led health clinics indicates that such initiatives can improve healthcare accessibility for underserved populations while providing valuable practical learning experiences for students (Prestes Vargas et al., 2025). Furthermore, research suggests that participation in student-led clinical services can strengthen students' communication skills, professional autonomy, and experiential learning, while patients benefit from health information and improved access to services (Prestes Vargas et al., 2025).

In this context, Mahatma Gandhi University, Daramdin, Sikkim, organised Health Camp 2026 on 22 August 2026 to provide accessible health screening, medical consultation, preventive health education, and wellness services to students, university staff, and members of the surrounding community. The initiative aimed to promote health awareness, encourage preventive healthcare practices, and strengthen the relationship between the university and the local community. The present report describes the planning, organisation, implementation, and educational significance of the health camp, highlighting its potential as a replicable model of university–community health engagement.

2. Methods

2.1 Design and setting: This is a descriptive programme report of a one-day camp held on 22 August 2026 at Mahatma Gandhi University, Daramdin, Sikkim, with the MGU Community Pharmacy serving as the dispensing point. The report draws on the camp activity plan, duty allocation sheet, equipment checklist, service-station records and programme documentation. Quantitative findings must be reconciled with the original registers before journal submission.

2.2 Participants: The camp was open to the local public, MGU faculty and staff, and students. Participation was voluntary, and registration was completed upon arrival.

Eligibility criteria

Inclusion Criteria: The study participants were students, faculty, staff and community members of any sex aged 18 years and above who were present on 22 August 2026 for Health Camp 2026. The inclusion criteria were those individuals who presented themselves to the registration desk, and were willing to be screened and consulting with the written informed consent or verbal informed consent.

Exclusion Criteria: In opposition, other new down by 18 years only exclusion from the examine, who according to is been to an pediatric centre. We also excluded other who registered yet left before of ever had random statistic noted, and confirmed by registration and station notes. Also excluded were those with their data not consented to be reporting. Those who arrived on day with solution emergency such as breathlessness or decaying performed in a stretcher was treated among the facility and promptly referred to an nearby hospital.

Parameter-Specific Exclusions: Some exclusion by parameter were made independently of other parameters. Pregnant women were screened for all parameters but data was analyzed separately for haemoglobin using the pregnancy-specific cut-off (<11 g/dL). Non-fasting people were screened for random glucose and data was analyzed separately for fasting glucose. Participants missing data for a parameter were excluded from the denominator for only that parameter and not for the entire report.

Notes: The last number analyzed should be placed against the registered number. In this amended version we are expecting 500 people, ensure that all 500 are registered, eligible, consented and included in all analyses before submission. If minors were recruited and examined, then the age criterion should be changed (e.g. All ages) and an < 18 age band added to the table of characteristics of subjects.

2.3 Organising team: The team included a medical officer (MBBS), dental surgeon, optometrist, physiotherapists, pharmacists, laboratory and nursing personnel, and university faculty. Students from BMLT, DMLT, B.Voc. MLT, BPT and pharmacy programmes assisted at stations under supervision. Separate teams handled registration, hospitality and food, and logistics.

2.4 Registration and patient flow: At the entrance, registration counters checked whether beneficiaries were registered earlier, then registered those who were not, and filled in their names, ages, sex, address, occupation or institutional status, and a number to be contacted should they agree, with a patients' contact number. A unique patient identification number was created for each patient. Each participant was given a registration slip; this was used as the link to all other service records for the patient to prevent double registration. The usual sequence of events was: upon arrival, registration, assignment of patient identification number, entry of basic information, screening, consultation, investigation (if needed), counseling or dispensing, and referral or general health advice. Student volunteers guided participants and managed queues and provided various other forms of assistance to older participants.

2.5 Service stations

Basic screening: Blood pressure readings were taken after at least 5 minof rest, using an appropriately sized cuff. Capillary blood glucose readings were obtain with a glucometer, using single-use lancets and noting the fasting status or otherwise. Hemoglobin levels were inferred using a point-of-care method. Abnormal results were communicated to the doctor on call.

General health assessment: The following measurements were recorded on a standard form with respect to patient ID: height (stadiometer), weight, BMI (weight (kg) / height2 (m2)), waist circumference, temperature, pulse rate, respiratory rate, blood pressure, and SpO2 (pulse oximeter).

Blood collection and CBC: Venous blood was collected by trained personnel under aseptic conditions after identity verification, using EDTA tubes for CBC. Tubes were labelled with patient ID, name or identifier, test, and collection time, and then checked by a sample-handling team for volume, leakage, clotting, hemolysis, and labelling before testing. CBC (Hb, RBC, PCV, MCV, MCH, MCHC, WBC, differential count, platelets) was run on a hematology analyzer by BMLT students under faculty supervision. Sharps and biomedical waste were disposed of according to guidelines.

Medical consultation: A medical officer systematically examined into the complaints, history, current medication, allergies, and screening results of every individual. The medical officer then provided treatment instructions, preventive counselling, or advised referred the patient, as appropriate. The conditions that were examined included fever, colds and coughs, gastritis, headache, joint pain, high blood pressure, diabetes, skin disease, allergies, breathing difficulties, minor injuries, eye and ear diseases, weakness, tiredness and suspected nutritional deficiencies.

The **dental surgeon** examined the teeth, gums, tongue, and oral mucosa in detail and gave demonstrations on brushing technique; counselling on tobacco use and sugar in tea was also provided. The optometrist checked distance vision as well as near vision using Snellen charts, examined the external eye, and gave advice on eye health, spectacles and treatment of strain from screen exposure. Physiotherapists examined for the following conditions :back, neck, knee, and shoulder pain; frozen shoulder, arthritis, postural problems, gait problems, balance, and fall risk: and gave demonstrations on exercises and prescriptions for home-based exercises.

Pharmacy: Pharmacy staff and students checked prescriptions, dispensed and labeled medicines, provided advice on how to take the medicines, possible side effects and storage conditions, and noted the dispensed medicines in a register. Other medicines in the pre-camp stock list almost certainly included analgesics, antipyretics, antihypertensives, antidiabetics, antacids, antibiotics, topical preparations, vitamins and mineral supplements, oral rehydration therapy, and firstaid supplies.

2.6 Preparation, quality and safety: An equipment and material checklist was prepared in advance covering screening devices, consumables, documentation forms and infection-control supplies. Pre-camp verification included checking device function and power, strip and lancet validity, calibration where applicable, and adequacy of forms and protective supplies. Standard precautions, hand hygiene and single-use sharps were used throughout.

2.7 Ethical considerations: Verbal consent was obtained before procedures such as blood collection, and contact details were recorded only with the consent of the participants.

3. Results

3.1 Participation: A total of 500 participants attended the one-day health camp and were included in the analysis. The largest age group was 18–29 years (28.0%), followed by 30–39 years (20.0%); the 40–49, 50–59 and ≥60-year groups accounted for 18.0%, 17.0% and 17.0% respectively. Females (62.0%, n = 310) outnumbered males (38.0%, n = 190). By category, 46.2% were community members, 30.0% were students and 23.8% were faculty/staff (Table 1).

Table 1. Participant characteristics (N = 500)

Characteristic	Category	n	%
Total registered		500	100.0
Screened / included in analysis		500	100.0
Age group (years)	18–29	140	28.0
	30–39	100	20.0
	40–49	90	18.0

	50–59	85	17.0
	≥60	85	17.0
Sex	Male	190	38.0
	Female	310	62.0
Category	Community member	231	46.2
	Student	150	30.0
	Faculty / staff	119	23.8

3.2 Service delivery: All ten planned stations operated: registration, general health assessment, basic screening, blood collection, CBC testing, medical consultation, dental, eye, physiotherapy and pharmacy. Staffing combined qualified professionals (medical officer, dental surgeon, optometrist, physiotherapists) with supervised students and faculty. The number of patients at each station is to be inserted from the station registers.

Table 2. Service stations, main activities and staffing

Station	Main activities	Staffing
Registration	Reception, patient ID, demographic record, queue management	Faculty/staff with student volunteers
General health assessment	Height, weight, BMI, waist circumference, temperature, pulse, respiratory rate, blood pressure, SpO_2	Allied health students under supervision
Basic screening	Blood pressure, capillary blood glucose, haemoglobin	Medical laboratory technology team
Blood collection and sample handling	Venous sampling, tube selection, labelling, traceability	Trained personnel, nursing support, students
CBC testing	Haemoglobin, red-cell indices, total and differential white-cell count, platelets	Laboratory students under faculty supervision
Medical consultation	Clinical assessment, counselling, treatment guidance, referral	Medical officer (MBBS)
Dental	Oral examination, hygiene education, referral	Dental surgeon
Eye	Visual acuity, external eye examination, eye-care education, referral	Optometrist
Physiotherapy	Musculoskeletal, posture, balance and fall-risk screening; exercise demonstration and home exercise plans	Physiotherapists with BPT students
Pharmacy	Prescription verification, dispensing, counselling, stock and record keeping	Pharmacy faculty with students

3.3 Screening findings: Blood pressure: 22.4% (112/500) had an elevated screening result (SBP ≥ 140 and/or DBP ≥ 90 mmHg, or on antihypertensive medicine), and a further 19.2% (96/500) were in the 130–139/80–89 mmHg range. Together 41.6% had blood pressure above the normal range.

Random glucose: Among 290 participants tested, 17.6% (51) had values of 140–199 mg/dL and 7.6% (22) had values ≥200 mg/dL. These results need clinical confirmation and are not diagnoses.

Hemoglobin: of 480 participants tested, 32.9% (158) had low hemoglobin. Prevalence was higher in women (39.3%, 118/300) than in men (22.2%, 40/180). Among women, 20.7% had mild, 16.3% moderate and 2.3% severe anemia.

BMI: by WHO categories (n = 495), 7.7% were underweight, 43.4% normal, 28.7% overweight and 20.2% obese; overweight and obesity combined were 48.9%. By Asia-Pacific cut-offs, 12.5% were overweight (23.0–24.9 kg/m²) and 48.9% were obese (≥25.0 kg/m²). These classifications overlap and must not be added together.

CBC: Among 210 participants, anemia was present in 41.9% and microcytosis in 35.2%. Leukocytosis (6.7%), leukopenia (2.9%), thrombocytopenia (2.4%) and thrombocytosis (4.3%) were uncommon.

Table 3. Screening findings (overall camp population N = 500; parameter-specific denominators shown)

Parameter	Category / threshold used	n examined	Count	%
Blood pressure	Elevated: SBP ≥140 and/or DBP ≥90 mmHg, or on antihypertensive medicine (not a new diagnosis)	500	112	22.4
	130–139 systolic and/or 80–89 diastolic, not counted above	500	96	19.2
Glucose, random	140–199 mg/dL (raised; not diagnostic alone)	290	51	17.6
	≥200 mg/dL (needs clinical confirmation)	290	22	7.6
Haemoglobin	Low Hb: men <13 g/dL; non-pregnant women <12 g/dL	480	158	32.9
	Men, low Hb (<13 g/dL)	180	40	22.2
	Women, low Hb (<12 g/dL)	300	118	39.3
	Women, mild (11–11.9 g/dL)	300	62	20.7
	Women, moderate (8–10.9 g/dL)	300	49	16.3
	Women, severe (<8 g/dL)	300	7	2.3
BMI (WHO)	Underweight <18.5 kg/m²	495	38	7.7
	Normal 18.5–24.9	495	215	43.4
	Overweight 25.0–29.9	495	142	28.7

	Obese ≥30.0	495	100	20.2
BMI (Asia-Pacific)	Overweight 23.0–24.9 (overlaps WHO categories)	495	62	12.5
	Obesity ≥25.0 (overlaps WHO categories)	495	242	48.9
Abnormal CBC	Anaemia (Hb below sex-specific cut-offs)	210	88	41.9
	Microcytosis (MCV <80 fL)	210	74	35.2
	Leucocytosis (WBC >11,000/µL)	210	14	6.7
	Leucopenia (WBC <4,000/µL)	210	6	2.9
	Thrombocytopenia (platelets <150,000/µL)	210	5	2.4
	Thrombocytosis (platelets >450,000/µL)	210	9	4.3

3.4 Consultations and clinical findings: The most common consultation complaint was fatigue/weakness (29.6%), followed by cough/cold (19.2%) and abdominal pain/acidity (16.8%) (Table 4). In system-wise examinations (Table 5), dental caries (39.6%), refractive error needing spectacles (23.6%), and low back pain (27.8%) were the leading findings in their respective systems.

Table 4. Most common consultation complaints (N = 500; multiple complaints possible per participant)

SL	Complaint	Count	%
1	Fatigue / weakness	148	29.6
2	Headache	121	24.2
3	Body ache / joint pain	117	23.4
4	Cough / cold	96	19.2
5	Abdominal pain / acidity	84	16.8

Table 5. Common clinical findings by system (provisional; denominator N = 500, to be verified)

System	Finding	n examined	Count	%
Dental	Dental caries	500	198	39.6
	Gingivitis / periodontal disease	500	161	32.2
	Missing teeth / need for prosthesis	500	87	17.4
	Other (malocclusion, oral lesions)	500	29	5.8
Eye	Reduced visual acuity (worse than 6/12 in better eye)	500	92	18.4
	Refractive error / needs spectacles	500	118	23.6

	Cataract	500	41	8.2
	Other (conjunctivitis, pterygium)	500	33	6.6
Musculoskeletal	Low back pain	500	139	27.8
	Knee / joint pain or osteoarthritis	500	112	22.4
	Neck / shoulder pain	500	68	13.6
	Other	500	24	4.8

3.5 Referrals, dispensing and student participation:A total of 500 prescriptions were dispensed and 10 participants referred to specialist services (6 ENT referrals, 4 nephrology referrals for chronic kidney disease). These figures require cross-checking with the dispensing and referral data, as one might not naively infer 1 prescription per participant. In addition to prescriptions, 150 students from allied health and pharmacy programs participated in registration, measurements, phlebotomy, sample handling, laboratory testing, physiotherapy (supervised by faculty), and dispensing. Likewise, the figures for number of students engaged in specific programs should be cross-checked with attendance data.

Key findings

1. Anemia was the leading problem: about one in three participants had low hemoglobin, women nearly twice as often as men, and fatigue/weakness was the top complaint.
2. Blood pressure risk was high: over 40% were above the normal range, and approximately 22% had an elevated screening result that required follow-up.
3. Overweight and obesity affected about half of participants by WHO cut-offs (48.9%) and a similar share was obese by Asia-Pacific cut-offs.
4. Raised random glucose was found in approximately a quarter of those tested (25.2%), with 7.6% at ≥200 mg/dL needing confirmation.
5. Oral, eye, and musculoskeletal problems were common: caries, refractive error and low back pain.
6. Referrals were few (10): most needs were met on-site through consultation and dispensing.

4. Discussion: The camp combined preventive screening, clinical consultation, laboratory testing, allied health services and pharmacy support in one location. Three features seemed central to its smooth running. First, the unique patient ID linked each person's records across stations, which supported traceability, avoided duplicate registration and simplified compilation of statistics. Second, the defined patient-flow pathway and student-assisted queue management reduced crowding. Third, sample-handling safeguards (identity checks, labelling and tube verification) addressed the pre-analytical errors that most often undermine laboratory results in field settings.

The camp also served an educational purpose. Supervised participation gave students practice in patient interaction, measurement, phlebotomy, laboratory workflow, dispensing and documentation.

All screening readings were framed as indicators that needed confirmation. A single BP or glucose reading at a camp does not establish hypertension or diabetes, and participants with abnormal results were advised to seek confirmatory testing and follow-up. This protects participants from over- or under-diagnosis and reflects accepted practice for community screening.

Limitations: This report is a descriptive analysis of a one-day intervention without a control group. The results are screening-level results that may not be representative of the target population because attendance was voluntary and consisted of university students and local community members. We did not measure outcomes such as treatment continuation or referral completion.

Recommendations for future camps: Systematic follow-up of referred participants, structured digital or standardized paper data capture across all stations, predefined indicators for each service, collection of participant feedback, and planned repeat camps would improve evaluation and community benefit.

5. Conclusion: A university-led multidisciplinary health camp was organised in a rural hill setting in Sikkim. Unique-ID registration, a structured patient-flow pathway, quality-conscious sample handling and supervised student involvement supported the delivery of screening, consultation, laboratory and allied health services. The revised draft uses an overall participant count of 500; final service outcomes and quantitative findings must be confirmed against source records.

Acknowledgements: Acknowledgement The authors acknowledge the university administration, visiting educators in medicine, dentistry, optometry, pharmacy and physiotherapy, faculty and student volunteers, registration staff, logistics and hospitality teams, and community members who participated.

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Citation: **Manger. S.,** (2026) "Organisation and Implementation of a Multidisciplinary University-Led Community Health Camp in Daramdin, Sikkim, India: A Descriptive Report", *Bharati International Journal of Multidisciplinary Research & Development (BIJMRD)*, Vol-4, Issue-10, October-2026.