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Eco-Wellness in Medical Education: A Cross-Sectional Study of Environmentally Responsible Health-Oriented Behaviours and Their Correlates among Undergraduate Medical Students in Karimnagar, India

Atul Gopal Agrawal[1*], Ankita Agrawal[2]

[1]*Professor and Head, Department of Community Medicine, Surabhi Institute of Medical Sciences, Siddipet, Telangana, India (MBBS, MD Community Medicine, PGDAST, PGDMCH, PGDHHM, ACME, MBA, CCH, CAI, CSD)*

[2]*Consultant Physiotherapist and Researcher, Department of Physiotherapy, Shree Sathya Sai Sanjeevani Mother and Child Hospital, Yavatmal, Maharashtra, India (MPT, Orthopaedics)*

*Corresponding author: Dr. Atul Gopal Agrawal, Department of Community Medicine, Surabhi Institute of Medical Sciences, Siddipet, Telangana, India. E-mail: dratulu9@gmail.com

KEY POINTS

- Only 41.25 percent of 320 second- and third-year MBBS students reached a demanding high score for eco-wellness behaviours.
- Reusable bottle use (70.0 percent) and energy conservation (66.6 percent) far exceeded active travel (36.6 percent) and plant-forward eating (33.4 percent).
- Female sex, hostel residence, third-year status and higher environmental knowledge were independently associated with a high score (adjusted odds ratios 1.74 to 2.49).
- Planetary health teaching is likely to work best when paired with campus environments that make sustainable choices easy.

***Abstract*—**

Background: Planetary health recognises that human health depends on the stability of natural systems. Medical students are future clinicians and public health leaders, yet environmental knowledge may not translate into sustainable daily practice. This study assessed environmentally responsible health-oriented behaviours and their socio-demographic and knowledge-related correlates among undergraduate medical students. Methods: An institutional cross-sectional analytical study was conducted at Prathima Institute of Medical Sciences, Karimnagar, Telangana, India, from March to June 2024. A total of 320 second- and third-year MBBS students (160 per year) completed a structured self-administered questionnaire on environmental knowledge and attitudes and on behaviours in five domains: active transport, sustainable nutrition, waste management, energy conservation and green consumerism. A high behaviour score was defined as a total above 75 percent of the maximum. Descriptive statistics, Wilson confidence intervals, chi-square tests, prevalence ratios and multivariable binary logistic regression were applied. Results: Mean age was 20.8 years (standard deviation 1.4) and 55.6 percent were female. Overall, 132 students (41.25 percent; 95 percent confidence interval 36.0 to 46.7) achieved a high score. In the adjusted model, female sex (adjusted odds ratio 1.92; 95 percent confidence interval 1.21 to 3.05), hostel residence (2.28; 1.42 to 3.66), third-year status (1.74; 1.09 to 2.78) and higher environmental knowledge (2.49; 1.52 to 4.07) were independently associated with a high score. Reusable bottle use (70.0 percent) and energy conservation (66.6 percent) were reported more often than active travel (36.6 percent) and plant-forward dietary choices (33.4 percent). Conclusion: Fewer than half of the students met the high-score threshold, and behaviours dependent on infrastructure and food systems lagged behind those under individual control. Medical colleges should pair planetary health teaching with campus environments that make sustainable choices easy.

Keywords—planetary health; eco-wellness; pro-environmental behaviour; medical students; environmental health; medical education; India

I. INTRODUCTION

Human health depends on ecological systems that supply clean air, safe water, food, climate regulation and other essential ecosystem services. The planetary health framework describes the health consequences of human disruption of Earth's natural systems and calls for approaches that protect both human well-being and the biosphere [1]–[3]. Climate change, biodiversity loss, pollution and unsustainable resource use are increasingly recognised as interconnected threats to population health [4]–[6] and to the resilience of health systems [7].

In this paper, eco-wellness is used as a working term for the alignment of everyday personal health practices with ecological sustainability. It is operationalised as environmentally responsible health-oriented behaviours (ERHOB): actions that support individual health while reducing environmental impact. Examples include walking or cycling for short journeys, choosing plant-forward meals, segregating waste, conserving electricity and water, and avoiding unnecessary single-use plastics. Shifts towards healthy and sustainable diets have been highlighted as important for both human and planetary health [8].

Environmental behaviour is shaped by more than awareness. Attitudes, perceived behavioural control, social norms,

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infrastructure, convenience and institutional policy all influence whether knowledge becomes action [9]–[12]. University campuses are a distinctive setting in which peer norms, residential arrangements, food services and transport infrastructure may facilitate or constrain sustainable choices (Fig. 1).

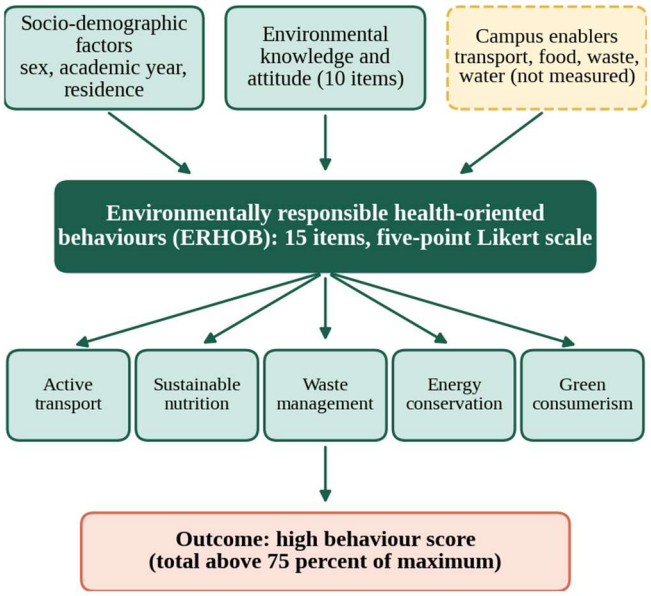

Fig. 1. Conceptual framework of correlates and behavioural domains of eco-wellness examined in this study. Campus enablers (dashed) were not measured.

Medical students are especially important because they will become clinicians, educators and health-system decision-makers. Integrating planetary health into medical education can build eco-medical literacy, strengthen understanding of climate-sensitive health risks and prepare future doctors to advocate for sustainable healthcare [13]–[16]. Recent work reports growing attention to planetary health education but also uneven curricular integration, inconsistent competencies and a need for experiential learning [16]–[20].

Evidence from India indicates that medical students recognise climate change as a health concern, while curricular and institutional integration remains inconsistent [21]–[23]. A recent evaluation of Indian medical schools identified variation in planetary health teaching, research, student initiatives and campus sustainability, and the national competency-based curriculum contains limited dedicated content [24], [25]. Against this background, the present study assessed selected ERHOB and their socio-demographic and knowledge-related correlates among second- and third-year MBBS students at Prathima Institute of Medical Sciences, Karimnagar.

Several gaps motivate this work. First, most planetary health education research describes curricula, competencies and attitudes rather than the everyday behaviours of students themselves [14]–[16], [20]. Second, behaviour is rarely examined across several domains at once, although transport, food, waste and energy depend on very different enabling conditions [9], [11]. Third, evidence from Indian medical colleges, where residential hostels, shared mess facilities and variable transport options shape daily life, remains sparse [21]–[23].

Objectives. The primary objective was to estimate the proportion of second- and third-year MBBS students who achieved a high ERHOB score. The secondary objectives were (i) to describe the frequency of five selected behaviours and (ii) to identify socio-demographic and knowledge-related correlates of a high score. We hypothesised, on the basis of the attitude–behaviour literature [9]–[12], that environmental knowledge, residential setting and greater curricular exposure would be positively associated with a high score.

II. Materials and Methods

A. *Study design and setting*

An institutional cross-sectional analytical study was conducted at Prathima Institute of Medical Sciences, Karimnagar, Telangana, India, from 1 March to 30 June 2024. The study population comprised undergraduate students enrolled in the second professional MBBS (Phase II) and third professional MBBS (Phase III Part I). The study is reported in accordance with the STROBE statement [26]; the study procedure is summarised in Fig. 2.

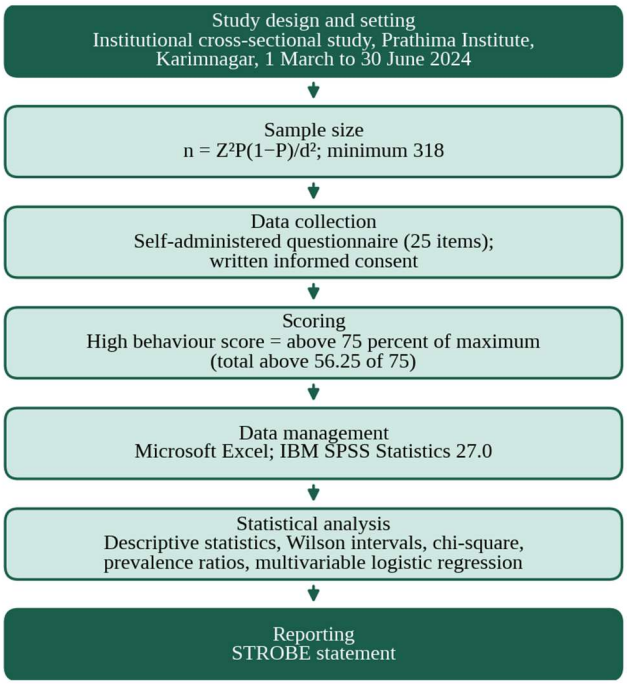

Fig. 2. Study procedure and analytic workflow.

B. *Sample size and participants*

The sample size was estimated using $n = Z^2P(1-P)/d^2$, assuming a prevalence of 50 percent, a 95 percent confidence level ($Z = 1.96$) and an absolute precision of 5.5 percent, giving a minimum of approximately 318 students. Of 350 eligible students, 330 questionnaires were distributed and 320 complete questionnaires (160 second-year and 160 third-year students) were analysed. The 20 students who were not approached were absent because of prolonged clinical postings or medical leave, or did not attend the scheduled distribution sessions. Of the 330 questionnaires distributed, 10 were excluded: 6 because of incomplete responses (more than 20 percent of Likert items missing) or uniform straight-line responding, and 4 because the response sheet was not submitted before data collection closed. Questionnaire completion was therefore 97.0 percent of those approached and 91.4 percent of those eligible (Fig. 3). The relationship between sample size and attainable precision is shown in Fig. 4.

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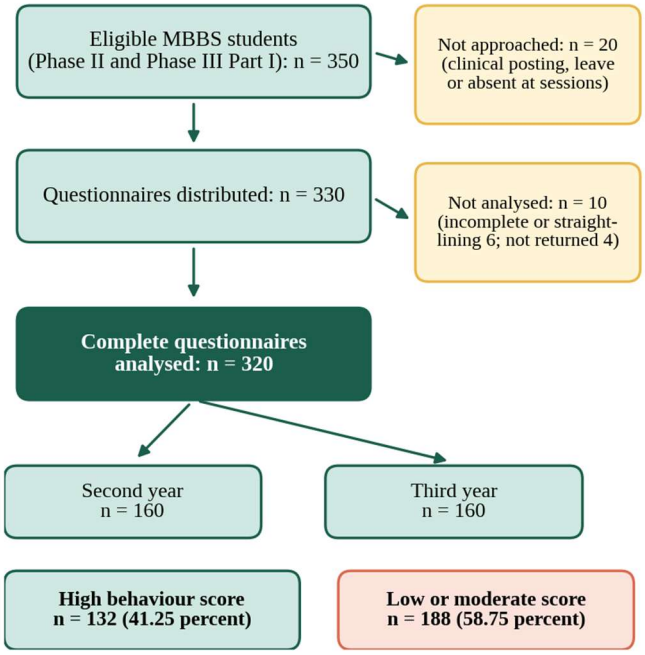

Fig. 3. Participant flow diagram.

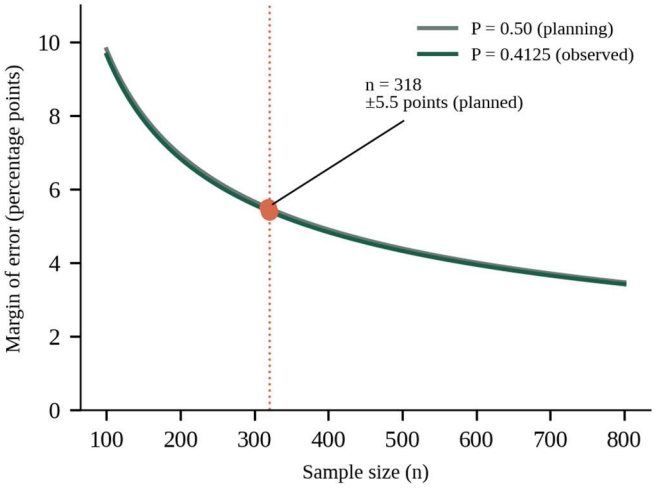

Fig. 4. Margin of error for a single proportion by sample size. The planned sample (n = 318; precision 5.5 percentage points) and the analysed sample (n = 320; 5.4 percentage points at the observed prevalence) are marked.

C. *Study instrument and variables*

Data were collected with a structured, self-administered questionnaire comprising socio-demographic items, a 10-item Environmental Knowledge and Attitude Scale and a 15-item ERHOB inventory with three items in each of five domains: active transport, sustainable nutrition, waste management, energy conservation and green consumerism (Table I). ERHOB items were scored on a five-point Likert scale (1 = never to 5 = always). The content validity index was 0.88 [27] and overall Cronbach's alpha was 0.85 [28]. Environmental knowledge and attitude was scored from 0 to 10 and entered into the regression model as a binary variable: higher knowledge (total above 7, that is 8 to 10 points) versus lower knowledge (0 to 7 points).

TABLE I. STRUCTURE OF THE INSTRUMENT AND OPERATIONAL DEFINITIONS

Component	Items	Scoring and definition
Socio-demographic	–	Age; sex; academic year (second or third professional MBBS); residence (hostel resident or day scholar)
Knowledge and attitude scale	10	Total 0 to 10; higher knowledge = 8 to 10; lower knowledge = 0 to 7
ERHOB inventory	15	Five-point Likert (1 never to 5 always); total 15 to 75
Domains (five)	3 each	Active transport; sustainable nutrition; waste management; energy conservation; green consumerism (range 3 to 15 per domain)
Behaviour frequency	–	Often or always = 4 to 5; sometimes = 3; rarely or never = 1 to 2
High ERHOB score (outcome)	–	Total above 75 percent of maximum (above 56.25 of 75); otherwise low or moderate

ERHOB, environmentally responsible health-oriented behaviours.

D. *Outcome definition*

Operational definitions. Academic year was defined as second or third professional MBBS. Residence was classified as hostel resident or day scholar. The five behaviours shown in Table IV were summarised as often or always (scores 4 to 5), sometimes (score 3) and rarely or never (scores 1 to 2). The ERHOB total was the sum of the 15 items (possible range 15 to 75), so a score above 75 percent of the maximum corresponds to a total above 56.25.

The primary outcome was a high ERHOB score, defined as a total score above 75 percent of the maximum possible score. Scores at or below 75 percent were classified as low or moderate.

E. *Statistical analysis*

Data were entered in Microsoft Excel and analysed with IBM SPSS Statistics version 27.0. Continuous variables are presented as mean and standard deviation, and categorical variables as frequencies and percentages. The 95 percent confidence intervals for proportions were calculated by the Wilson method [29], [30]. Pearson's chi-square test was used for bivariate comparisons, and crude odds ratios were derived from the cross-tabulated counts. Multivariable binary logistic regression, including sex, residence, academic year and environmental knowledge, was used to estimate adjusted odds ratios (AOR) with 95 percent confidence intervals. Statistical significance was set at $p < 0.05$. Model fit was assessed with the Hosmer–Lemeshow test [31] and Nagelkerke R^2 [32].

Effect sizes were reported in four ways to aid interpretation: odds ratios; absolute differences in the percentage with a high score (with Wald 95 percent confidence intervals); prevalence ratios with log-method confidence intervals, because odds ratios overstate relative differences when the outcome is common; and the phi coefficient for each 2 × 2 comparison. The expected precision of the overall prevalence at n = 320 is approximately ±5.4 percentage points, which matches the planned precision of 5.5 percent. With 132 events and four predictors the model had more than 30 events per predictor, above the commonly cited threshold of 10 [33].

F. *Ethical considerations*

The study was approved by the Institutional Ethics Committee of Prathima Institute of Medical Sciences (reference IEC/PIMS/2024/23; approval dated 26 February 2024, before data collection began on 1 March 2024). Written informed

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consent was obtained from all participants, participation was voluntary and responses were anonymous.

III. RESULTS

A. *Participant characteristics and overall ERHOB*

A total of 320 students were analysed, with equal representation from the second and third years. The mean age was 20.8 ± 1.4 years; 178 (55.6 percent) were female and 142 (44.4 percent) were male. Hostel residents accounted for 192 (60.0 percent) and day scholars for 128 (40.0 percent). A high ERHOB score was achieved by 132 students (41.25 percent; 95 percent CI 36.0–46.7), whereas 188 (58.75 percent) had low or moderate scores (Fig. 5). Women, third-year students and hostel residents were over-represented among high scorers relative to their share of the sample (Fig. 6): 65.2 percent of high scorers were female against 55.6 percent of all students, 58.3 percent were in the third year against 50.0 percent, and 70.5 percent were hostel residents against 60.0 percent.

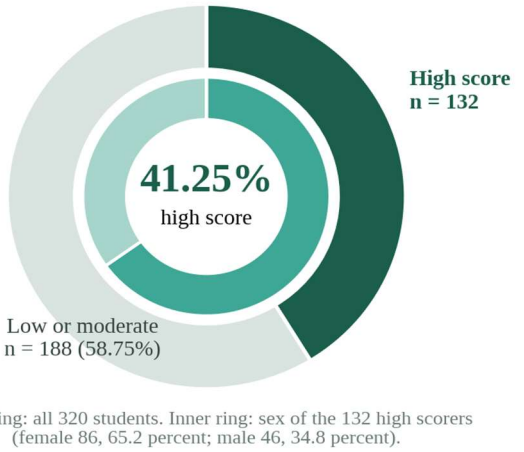

Fig. 5. Donut chart of the overall ERHOB classification (outer ring, n = 320) with the sex composition of high scorers (inner ring, n = 132).

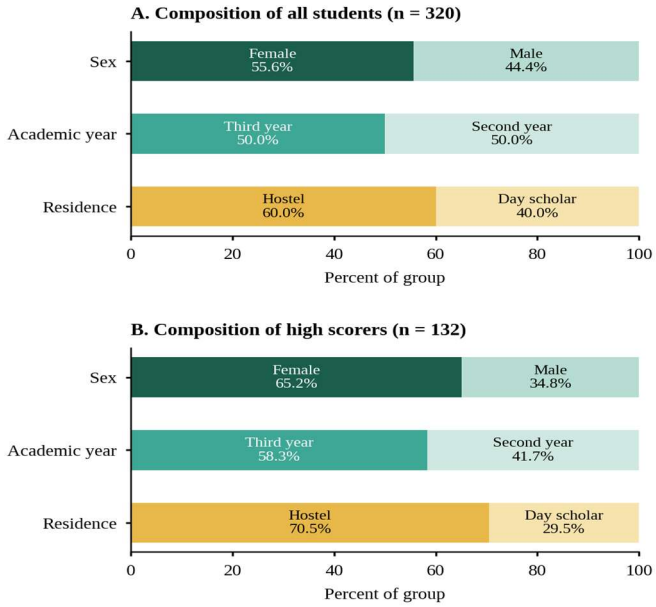

Fig. 6. Composition charts. (A) Composition of all students by sex, academic year and residence. (B) Composition of the 132 students with a high score.

As shown in Table II and Fig. 7, the proportion with a high score was significantly greater among female students, third-year students and hostel residents.

TABLE II. SOCIO-DEMOGRAPHIC CHARACTERISTICS AND BIVARIATE ASSOCIATION WITH HIGH ERHOB (N = 320)

Characteristic	Total n (%)	High score n (%)	Crude OR (95% CI)	χ^2	p
Female	178 (55.6)	86 (48.3)	1.95 (1.23–3.08)	8.26	0.004
Male (ref.)	142 (44.4)	46 (32.4)	1.00		
Third year	160 (50.0)	77 (48.1)	1.77 (1.13–2.78)	6.24	0.012
Second year (ref.)	160 (50.0)	55 (34.4)	1.00		
Hostel resident	192 (60.0)	93 (48.4)	2.14 (1.34–3.43)	10.23	0.001
Day scholar (ref.)	128 (40.0)	39 (30.5)	1.00		
Overall	320 (100)	132 (41.25)	–	–	–

OR, odds ratio; CI, confidence interval; ref., reference category. χ^2 with 1 degree of freedom, Pearson test without continuity correction.

B. *Absolute and relative effect sizes*

The absolute differences were substantial (Table III). Hostel residents were 18.0 percentage points more likely than day scholars to achieve a high score, and female students 15.9 points more likely than male students. The corresponding prevalence ratios were 1.59, 1.49 and 1.40 for residence, sex and academic year, which are smaller than the odds ratios because the outcome was common. The phi coefficients (0.14 to 0.18) indicate small to modest bivariate effects, which is expected for behaviour outcomes with many unmeasured influences.

TABLE III. ABSOLUTE AND RELATIVE EFFECT SIZES FOR BIVARIATE COMPARISONS

Comparison	Difference (points)	95% CI	Prevalence ratio (95% CI)	Phi
Female vs male	15.9	5.3 to 26.6	1.49 (1.12–1.98)	0.16
Third year vs second year	13.8	3.1 to 24.4	1.40 (1.07–1.83)	0.14
Hostel vs day scholar	18.0	7.3 to 28.6	1.59 (1.18–2.15)	0.18

Difference = percentage with a high score in the first group minus the second group (percentage points; Wald intervals). Prevalence ratio intervals by the log method.

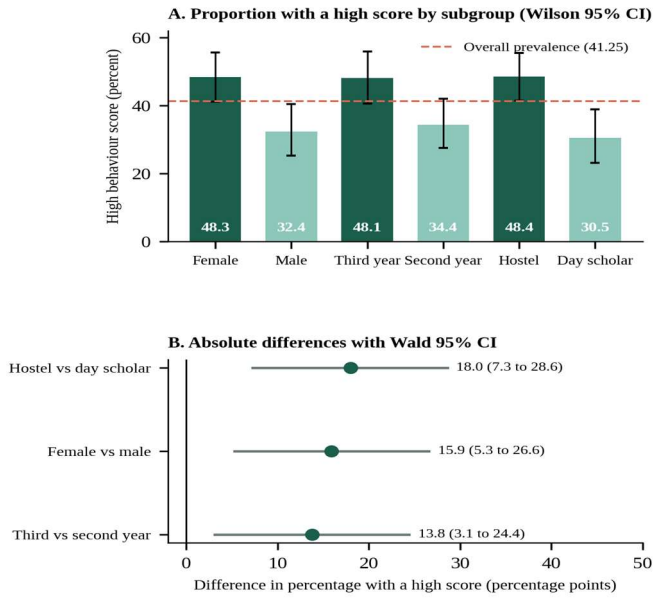

Fig. 7. (A) Percentage of students with a high ERHOB score by subgroup; error bars show 95 percent Wilson confidence intervals and the dashed line marks the overall prevalence. (B) Absolute differences with Wald 95 percent confidence intervals.

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C. *Behavioural domain profile*

The most frequently reported practices were refilling reusable bottles (70.0 percent) and energy conservation (66.6 percent). Waste segregation was reported often or always by 47.5 percent, active travel by 36.6 percent and plant-forward dietary choices by 33.4 percent (Table IV, Fig. 8). Roughly one in four to one in five students rarely or never practised active travel, plant-forward eating or waste segregation.

The gap between the most and least frequent behaviours was 36.6 percentage points (reusable bottles 70.0 percent versus plant-forward choices 33.4 percent), and the 95 percent confidence intervals of these two behaviours do not overlap (Table IV). Only two of the five behaviours (reusable bottles and energy conservation) were reported often or always by a majority of students. The radar profile and improvement-gap chart in Fig. 9 show that the proportion of students not yet practising a behaviour often or always ranged from 30.0 percent for reusable bottles to 66.6 percent for plant-forward choices.

TABLE IV. FREQUENCY OF SELECTED ENVIRONMENTALLY RESPONSIBLE BEHAVIOURS (N = 320)

Behaviour	Often or always, n; % (95% CI)	Sometimes n (%)	Rarely or never n (%)
Reusable bottle use	224; 70.0 (64.8–74.8)	64 (20.0)	32 (10.0)
Energy conservation	213; 66.6 (61.2–71.5)	79 (24.7)	28 (8.8)
Waste segregation	152; 47.5 (42.1–53.0)	108 (33.8)	60 (18.8)
Active travel	117; 36.6 (31.5–42.0)	125 (39.1)	78 (24.4)
Plant-forward dietary choices	107; 33.4 (28.5–38.8)	141 (44.1)	72 (22.5)

Confidence intervals by the Wilson method.

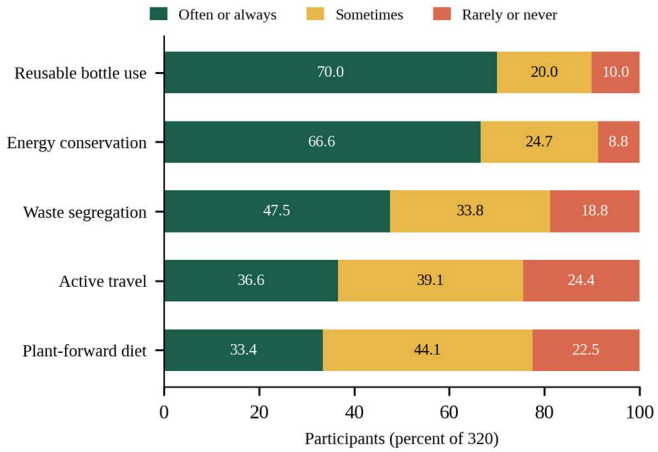

Fig. 8. Frequency of selected environmentally responsible behaviours (percent of 320 participants).

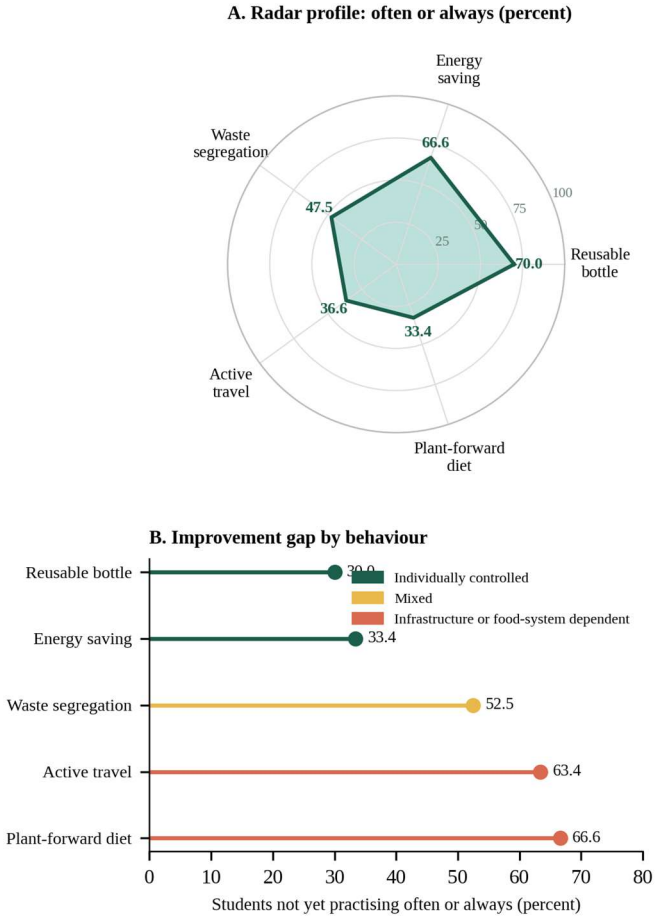

Fig. 9. (A) Radar profile of the percentage practising each behaviour often or always. (B) Improvement gap (100 minus percentage practising often or always); colours indicate the grouping used in the Discussion.

D. *Multivariable analysis*

In the adjusted model, female sex, hostel residence, third-year status and higher environmental knowledge were each positively associated with a high ERHOB score (Table V, Fig. 10). Higher environmental knowledge showed the largest adjusted association (AOR 2.49). Adjustment changed the estimates only slightly from the crude values, indicating that the correlates act largely independently. The model showed acceptable calibration (Hosmer–Lemeshow $\chi^2 = 5.88$, 8 degrees of freedom, $p = 0.661$) and explained a modest share of variance (Nagelkerke $R^2 = 0.198$).

Comparing crude and adjusted estimates, the odds ratio changed by about −2 percent for female sex (1.95 to 1.92), +6 percent for hostel residence (2.14 to 2.28) and −2 percent for academic year (1.77 to 1.74). The small changes suggest limited confounding among the measured variables, although unmeasured confounding cannot be assessed. With 132 events and four predictors, the model had more than 30 events per predictor, so overfitting is unlikely to be a concern.

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TABLE V. MULTIVARIABLE LOGISTIC REGRESSION OF FACTORS ASSOCIATED WITH HIGH ERHOB

Predictor (reference)	B	SE	AOR (95% CI)	p
Female (male)	0.652	0.236	1.92 (1.21–3.05)	0.006
Hostel (day scholar)	0.824	0.242	2.28 (1.42–3.66)	<0.001
Third year (second year)	0.554	0.239	1.74 (1.09–2.78)	0.020
Higher environmental knowledge	0.912	0.251	2.49 (1.52–4.07)	<0.001

B, regression coefficient; SE, standard error; AOR, adjusted odds ratio; CI, confidence interval. Hosmer–Lemeshow $\chi^2 = 5.88$, 8 degrees of freedom ($p = 0.661$); Nagelkerke $R^2 = 0.198$. p values are Wald tests.

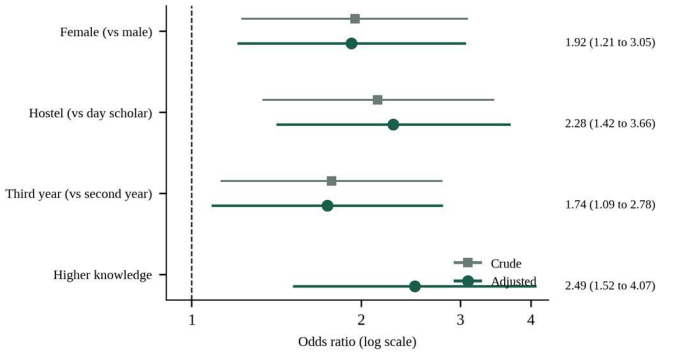

Fig. 10. Crude and adjusted odds ratios (95 percent confidence intervals) for correlates of a high ERHOB score. The dashed line indicates no association. A crude estimate is not shown for knowledge.

IV. DISCUSSION

A. *Principal findings*

Four findings stand out. First, fewer than half of students (41.25 percent) met a demanding threshold of 75 percent of the maximum score. Second, behaviours that individuals control directly (carrying a reusable bottle, switching off appliances) were far more common than behaviours that depend on infrastructure and food systems (active travel, plant-forward eating). Third, three socio-demographic characteristics (female sex, hostel residence, later academic year) were each associated with roughly 1.7 to 2.3 times the odds of a high score. Fourth, environmental knowledge had the strongest association, even after adjustment.

Reusable bottle use and energy conservation were relatively common, whereas active travel and plant-forward dietary choices were less so. This pattern suggests that behaviours requiring little change to established routines are easier to adopt than those that depend on transport design, food availability or wider institutional arrangements, consistent with the attitude–behaviour gap described in the environmental psychology literature [10], [12]. The findings sit within the planetary health framework, which holds that health-promoting choices can also reduce environmental harm [1]–[3], [8]. The lower frequency of plant-forward choices may reflect food preferences, menu availability, affordability or limited awareness of sustainable nutrition; these explanations were not measured.

B. *Comparison with existing evidence*

The knowledge association agrees with the closest Indian comparator, a cross-sectional study of medical students in which environment-friendly practices were significantly more common among those with adequate knowledge of climate change [21]. The present study extends that observation by scoring behaviour across five domains and by showing that the association persisted after adjustment for sex, residence and academic year. Table VI places the study alongside Indian evidence on curricula and institutions.

TABLE VI. INDIAN EVIDENCE RELEVANT TO THE PRESENT FINDINGS

Source	Design	Relevant finding
Reddy et al. [21]	Cross-sectional survey of medical students	Environment-friendly practices significantly higher with adequate knowledge
Govind et al. [22]	Pilot survey of Indian medical schools	Most schools did not teach climate–health; 134 of 542 (24 percent) had an existing programme
Pattanaik and Pattnaik [24]	Report-card evaluation of four medical schools	Healthcare carbon footprint not covered in any school; campus sustainability progressed in all

Findings are as reported by the cited authors and are not directly comparable with the behaviour scores in this study.

C. *Interpretation of the correlates*

Female students had higher adjusted odds of a high score than male students. Cross-national research has reported that women often describe stronger pro-environmental attitudes and behaviours [34], although results vary with setting and the behaviours measured [9]. The association should not be read as an inherent sex difference. It may reflect attitudes, perceived responsibility, social expectations or reporting patterns, none of which can be established here.

Hostel residence was associated with more than double the odds of a high score. Shared routines, proximity to teaching facilities, peer influence and common infrastructure may facilitate walking, waste segregation and energy saving, in line with the role of social norms in the theory of planned behaviour [12]. Hostel residence may also be a proxy for other contextual factors, and the mechanism was not directly assessed.

Third-year students had higher adjusted odds than second-year students. Greater exposure to community medicine and public health concepts may contribute, and the literature increasingly recommends longitudinal, interprofessional and experiential approaches to planetary health teaching [13]–[18]. However, this cross-sectional design cannot separate curricular effects from age, cohort effects or longer exposure to the campus.

Higher environmental knowledge was the strongest correlate of a high score. This supports including environmental health and planetary health competencies in undergraduate training [18], [20], and echoes surveys showing that health professionals regard climate change as a health issue and are receptive to action [35]. Yet knowledge alone is unlikely to suffice when sustainable options are unavailable or inconvenient, which is why institutional policy, faculty development, applied learning and campus sustainability initiatives are repeatedly emphasised [14]–[16], [20]. Because the outcome was common, the adjusted odds ratios overstate the corresponding relative differences in prevalence; the prevalence ratios in Table III (1.40 to 1.59) give a more conservative picture.

D. *Implications for medical education and campus practice*

Medical colleges can integrate planetary health into community medicine, environmental health and public health teaching through case-based learning, campus environmental audits, waste management projects, energy-use assessments and community outreach. Student-led report cards offer one route to monitoring progress [36]. Practical measures include safe pedestrian routes, bicycle facilities, drinking-water refill points, clearly labelled segregation bins, energy-efficient

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buildings and healthy plant-forward menus. These align with international guidance on low-carbon, climate-resilient health care [7], [37]–[39] and with the observation that health care itself carries a substantial environmental footprint [37]. Table VII links each finding to a proposed action, and Fig. 11 summarises the proposed model, which was not tested in this study.

TABLE VII. FINDINGS AND PROPOSED ACTIONS

Finding	Proposed curricular or campus action
Active travel reported by 36.6 percent	Safe walking and cycling routes; bicycle parking; shuttle policy review
Plant-forward choices reported by 33.4 percent	Plant-forward options in mess menus; sustainable nutrition teaching
Waste segregation by 47.5 percent	Colour-coded bins at hostels and teaching blocks; student waste audits
Higher knowledge strongest correlate	Planetary health outcomes in community medicine; case-based learning
Lower scores among day scholars	Extend campus programmes and incentives to day scholars

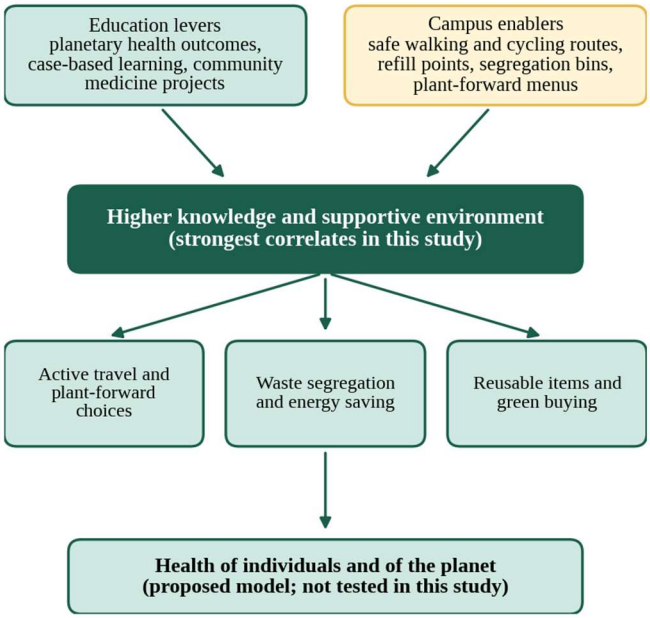

Fig. 11. Proposed model linking educational levers and campus enablers to sustainable behaviours (not tested in this study).

Indian medical schools have an opportunity to strengthen planetary health education through explicit learning outcomes, interdisciplinary collaboration, student-led initiatives and institutional sustainability plans, because current integration is variable and campus-level initiatives remain limited [23]–[25].

E. *Future research agenda*

Future studies should (i) use multicentre sampling across public and private colleges and across regions; (ii) follow cohorts longitudinally from the first year to internship to test whether teaching changes behaviour; (iii) pair self-report with objective indicators such as waste audits, refill-station counts and electricity metering; (iv) measure campus enablers, norms and affordability directly so that mediators can be tested; and (v) evaluate interventions, for example plant-forward menu redesign or cycling infrastructure, using controlled or stepped-wedge designs. Validation of the questionnaire in Indian student populations, with factor analysis and test–retest reliability, would strengthen comparability across studies [18], [20].

F. *Strengths and limitations*

Strengths include a defined undergraduate cohort with equal numbers from two academic years, a high completion proportion, assessment of several behavioural domains, an instrument with documented content validity and good internal consistency, and reporting of adjusted associations alongside absolute and relative effect sizes. Limitations include the cross-sectional design, which precludes causal inference; reliance on self-reported behaviour with possible social-desirability and recall bias [40]; construct validity of the instrument, which was not formally tested; and restriction to a single medical college, which limits generalisability. The 20 eligible students who were not approached, mainly because of clinical posting absence or leave, may differ from participants, which could introduce selection bias. Dichotomising knowledge at a score above 7 discards information, and residual confounding by family income, urban or rural background and dietary preference cannot be excluded. Behaviour was not verified by objective indicators such as waste audits or energy-use records.

V. CONCLUSION

In this study of undergraduate medical students at Prathima Institute of Medical Sciences, Karimnagar, 41.25 percent achieved a high ERHOB score. Reusable bottle use and energy conservation were the most frequently reported practices, whereas active travel and plant-forward dietary choices were less common. Female sex, hostel residence, third-year status and higher environmental knowledge were independently associated with a high score. These findings suggest that medical colleges should combine planetary health education with campus environments that make sustainable choices accessible and practical. Multicentre and longitudinal studies using validated instruments and objective behavioural indicators are warranted.

TABLE VIII. STROBE REPORTING ITEMS AND THEIR LOCATION

STROBE item	Location in manuscript
Study design, setting, dates	Section II-A
Participants and flow	Section II-B; Fig. 3
Variables and measurement	Sections II-C and II-D; Table I
Bias and study size	Section II-B; Section IV-F; Fig. 4
Statistical methods	Section II-E
Outcome data, main results	Section III; Tables II–V; Figs. 5–10
Limitations, generalisability	Section IV-F
Funding and ethics	Section II-F; Declarations

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DECLARATIONS

Ethics approval and consent to participate: Approved by the Institutional Ethics Committee, Prathima Institute of Medical Sciences (IEC/PIMS/2024/23); written informed consent was obtained from all participants.

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Competing interests: The authors declare no competing interests.

Data availability: De-identified data are available from the corresponding author on reasonable request, subject to institutional ethics and data-sharing requirements.

Author contributions: A.G.A.: conceptualization, study design, methodology, supervision, statistical analysis and manuscript drafting. A.A.: data curation, literature review, critical revision and figure preparation.

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