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Original Research Article

Perception of Dermatology as a Subject and Career Choice among MBBS Students in a Medical College in Indore, Madhya Pradesh: An Analytical Cross-Sectional Study

Vishal Agrawal¹, Meghali Dhebane², Siddharth Sethi³

- ¹Associate Professor, Department of Dermatology, Venereology and Leprosy, Sri Aurobindo Medical College and PG Institute, Sri Aurobindo University, Indore, MP, India
- ²Associate Professor, Department of Pathology, Himalayan Institute of Medical Sciences, Dehradun, Uttarakhand, India
- ³Assistant Professor, Department Of Dermatology, Venereology & Leprosy, Sri Aurobindo Medical College and P.G. Institute, Sri Aurobindo University, Indore, MP, India

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Corresponding author: Dr. Siddharth Sethi

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Abstract

Background: Dermatologic complaints comprise a large share of ambulatory care, yet undergraduate (UG) exposure and specialty perceptions vary, shaping career intentions and preparedness. We assessed perceptions of dermatology as a subject and career among senior MBBS students in Indore, India.

Methods: We conducted an analytical cross-sectional survey of Phase III MBBS students using a faculty-validated, semi-structured questionnaire covering curricular adequacy, learning modalities, perceived lifestyle/competitiveness, and career intention. Descriptive statistics summarized responses. Group differences (intends dermatology vs no/unsure) used χ^2 tests and Welch's t-tests. Multivariable logistic regression estimated adjusted odds ratios (aOR) for intention, entering a priori covariates (positive clerkship experience, perceived work–life balance, perceived competitiveness, prior elective/observership, mentorship, training phase, and sex).

Results: Of 312 respondents (mean age 22.4±1.2 years; 47.4% female), 164 (52.6%) reported definite/probable intention to pursue dermatology. While most endorsed dermatology's relevance, only 135/312 (43.3%) agreed UG clinical exposure was adequate. Agreement with favorable work–life balance was 187/312 (59.9%), and with "competitiveness limits feasibility" was 192/312 (61.5%). Compared with peers who were no/unsure, students intending dermatology more often endorsed favorable work–life balance (70.7% vs 48.0%, p<0.001) and had prior elective/observership (29.3% vs 9.5%, p<0.001), but were less likely to agree that competitiveness limits feasibility (56.1% vs 67.6%, p=0.038). In adjusted models, intention was independently associated with positive clerkship experience (aOR 4.09, 95% CI 2.44–6.86; p<0.001) and favorable work–life balance (aOR 3.04, 95% CI 1.80–5.14; p<0.001); perceived competitiveness showed an inverse association (aOR 0.49, 95% CI 0.29–0.82; p=0.007). Prior elective/observership also predicted intention (aOR 4.73, 95% CI 2.34–9.54; p<0.001). Sex and training phase were not significant.

Conclusion: Among senior MBBS students, dermatology was viewed as highly relevant but UG clinical exposure was perceived as limited. Positive clerkship experience and perceptions of favorable work—life balance strongly increased specialty intention, whereas perceived competitiveness attenuated it. Enhancing supervised OPD exposure, case-based teaching, and mentorship may strengthen UG competence and enable informed specialty choice.

Keywords: Dermatology Education; Medical Students; Specialty Choice; Perceptions; India; Undergraduate Curriculum; Work–Life Balance.

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Introduction

Dermatologic disorders account for a substantial proportion of primary-care encounters worldwide, and in India they represent a frequent cause of outpatient visits across urban and rural settings [1,2]. Because MBBS graduates are often the first point of contact, baseline competence in diagnosing

common dermatoses, triaging emergencies (e.g., toxic epidermal necrolysis), and counseling for chronic conditions such as psoriasis, acne, and atopic dermatitis is essential for safe, efficient care [1–3]. In addition to clinical burden, a significant psychosocial and a quality-of-life impact of skin

disease, including both stigma and functional impairment, is present, which supports the necessity of new graduates to exhibit confidence in front-line assessment and compassionate communication [3,4].

In the past, undergraduate (UG) dermatology was relatively low in terms of medical curriculum visibility, having comparatively brief clinical placements, and minimal internalized evaluation relative to other major areas [2,5]. Both international and Indian research indicate an expectation of enhancing student interactions, perceived preparedness, and dermatology interest by clinical exposure at an early and authentic stage, case-based learning, and mentored electives [1,5]. The move to implement a competency-based medical education (CBME) model in India is hoped to overcome this by describing observable practiceoriented outcomes and promoting active learning and workplace-based evaluation; nevertheless, how much and how faithfully this is applied in each institution has not been evenly spread yet [2,6]. The footprint of dermatology in Phase III training and identity of students to adequacy/relevance can also be lowered by resource constraints such as high outpatient volumes, small faculty numbers and share of clinical time [6].

Among medical students, the choice of specialty is multifactorial with the perceptions of lifestyle, length (duration) of training and competitiveness, mentorship, perceived patient impact and procedural opportunities in interaction with personal interests and career objectives [5,7]. In the case of dermatology, it is regularly found in the literature that students appreciate outpatient-based workflows, longitudinal patient relationships and diversity in procedures, whereas at the same time the perceived intense competition of the few available residency slots can be seen as a significant negative factor [5,7].

With postgraduate places in dermatology still very desirable in India, such perceptions can have disproportionate impact on career choices- any interested students may not be convinced to choose the course, even where it is relevant to their studies [6,7]. Any explanation of how senior MBBS students value dermatology as a subject and career may thus inform some specific educational adjustments (e.g. protected OPD exposure, structured case-based courses, near-peer mentoring) and provide advice on training routes and realistic competitiveness [2,5,7].

In the current study, the perceptions of dermatology among the Phase III MBBS students in a massive teaching hospital in Indore, Madhya Pradesh were studied. In particular, we evaluated (i) perceived curricular adequacy and relevance of UG dermatology instruction; (ii) views about the

specialty- work-life balance, patient impact, procedural variety and competitiveness; and (iii) intention to enter dermatology and associated variables, such as clerkship experience, mentorship, and prior elective exposure. We hypothesized that positive, authentic clinical experiences and favorable beliefs about work-life balance would associate with stronger specialty intention, whereas perceptions of excessive competitiveness would attenuate interest, independent of demographic and training-stage factors [5–8]. By quantifying these relationships within India's CBME milieu, our aim is to provide actionable evidence for curricular calibration and student advising in comparable institutions across the region [2,6–8].

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Materials and Methods

Study design and setting: We conducted an analytical cross-sectional study in the Department of Dermatology, Venereology and Leprosy, Sri Aurobindo Medical College and PG Institute in Indore, Madhya Pradesh, India. The study was embedded within the undergraduate (UG) MBBS Phase III curriculum and was completed over a predefined three-month window (study period: e.g., August—October 2025). All methods adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) recommendations for cross-sectional surveys.

Participants and eligibility: The sampling frame comprised MBBS Phase III (Part 1 and Part 2) students who were attending scheduled dermatology lectures and/or clinical postings during the study period.

Inclusion criteria were: (i) enrolment as an MBBS Phase III student at the institution; (ii) attendance at dermatology teaching activities during the data-collection window; and (iii) provision of written informed consent.

Exclusion criteria were: refusal of consent, absence during survey administration, and internship (Compulsory Rotatory Residential Internship) status. No financial incentives were offered.

Sampling strategy: We employed a census approach, inviting all eligible students present on survey days to participate immediately after lectures/clinical postings. This approach minimized selection bias tied to interest in dermatology and avoided duplicate responses. The final response count and rate were documented (N invited, n responded; response rate %).

Ethics and governance: The Institutional Ethics Committee approved the protocol prior to initiation, including the questionnaire, participant information sheet, and consent form. Participation was voluntary. We collected no personally identifying information; questionnaires were anonymous and stored separately from consent forms. Data were handled in accordance with institutional policy and applicable privacy regulations.

Instrument development and content: We used a predesigned, pretested, semi-structured questionnaire developed by the investigators and vetted by two senior dermatology faculty for content validity (relevance, clarity, coverage). The instrument drew on previously published surveys of UG dermatology education and specialty choice and was adapted for local context.

The questionnaire contained four domains:

- 1. Sociodemographic and academic variables (age, sex, Phase III part, prior elective/observership in dermatology, mentorship exposure, prior research exposure).
- 2. Perceptions of curricular relevance and adequacy (Likert items on relevance to general practice; adequacy of UG clinical exposure; utility of case-based learning; sufficiency of OPD/bedside exposure; appropriateness of image-based assessment).
- 3. Attitudes toward dermatology as a career (work-life balance, patient impact, procedural variety, perceived competitiveness/limited seats).
- 4. Career intention (four-level item: "definite," "probable," "unsure," "no" intention to pursue dermatology), plus an open-ended prompt for comments/suggestions.

The draft instrument underwent cognitive pretesting with a small convenience sample of Phase III students (n≈10–15) to assess comprehension and item flow; minor wording refinements were made accordingly. Internal consistency for multi-item constructs was evaluated using Cronbach's alpha (reported in Results).

Data collection procedures: Questionnaires were administered in paper form immediately after scheduled teaching/clinical sessions by the principal investigator and a trained assistant.

Average completion time was 10–15 minutes. Investigators remained available to clarify procedural queries (not content). Completed forms were sealed in envelopes and transferred the same day to the study office. Non-responders were not pursued beyond the session to preserve anonymity.

Variables and operational definitions

Primary outcome: intention to pursue dermatology as a career, operationalized as a binary variable by collapsing "definite" and "probable" into intends dermatology = 1, and "unsure" or "no" into 0.

Key exposures: (i) positive clerkship experience (agree/strongly agree to an item summarizing teaching quality, supervision, and perceived learning during postings); (ii) favorable work—life balance (agree/strongly agree); (iii) perceived competitiveness limits feasibility (agree/strongly agree).

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Other covariates: sex (female vs male), training stage (Phase III Part 2 vs Part 1), prior dermatology elective/observership (yes/no), mentorship exposure (yes/no), and perceived adequacy of UG clinical exposure (agree/strongly agree vs other).

Likert handling: Five-point Likert items (strongly agree to strongly disagree) were collapsed a priori into agree (strongly agree/agree), neutral, and disagree (disagree/strongly disagree). For regression, prespecified predictors used binary coding agree vs other.

Data management and quality assurance: Data were double-entered independently into a password-protected spreadsheet, reconciled for discrepancies, and exported to the statistical package (Stata/SE 17, SPSS 29, or R 4.x) for analysis. Range checks and logic checks (e.g., mutually exclusive responses) were applied. Freetext responses were transcribed verbatim and archived for qualitative illustration (not thematically analyzed in this report).

Statistical analysis: All analyses were performed in accordance with a prespecified plan:

- 1. **Descriptive statistics:** Categorical variables were summarized as counts and percentages with 95% confidence intervals (CIs) where informative; continuous variables as mean (SD) or median (IQR) based on distributional assessment (Shapiro–Wilk, histograms).
- Group comparisons: We compared students who intended dermatology vs no/unsure using χ² tests (or Fisher's exact test where cell counts <5) for categorical variables and Welch's ttests (or Mann–Whitney U tests if non-normal) for continuous variables. Two-sided α=0.05 defined statistical significance.
- 3. **Multivariable modeling:** We fitted a logistic regression with intends dermatology as the dependent variable. Prespecified covariates entered simultaneously included positive clerkship experience, favorable work–life balance, perceived competitiveness, prior elective/observership, mentorship exposure, Phase III part, and sex. Results were presented as adjusted odds ratios (aORs) with 95% CIs and p-values. Model fit was assessed using the Hosmer–Lemeshow goodness-of-fit test, calibration plots where applicable, and pseudo-R² indices. Multicollinearity was evaluated via variance inflation factors (VIFs), targeting VIF

- <2.5. Linearity in the logit was inspected for any continuous predictors (e.g., age) if retained.
- 4. Missing data: Item non-response was expected to be minimal; analyses used complete-case data. Sensitivity analyses (e.g., coding neutrals with "other" vs excluding) were planned if missingness exceeded 5% for any key variable.
- 5. **Multiplicity:** Given the focused, hypothesisdriven set of comparisons, p-values were not adjusted for multiple testing; effect sizes and CIs were emphasized for interpretation.

Bias considerations: We minimized selection bias by surveying entire teaching cohorts immediately after sessions. Information bias was mitigated by anonymous self-administration and neutral framing of items. To reduce social desirability bias, we avoided faculty presence during completion. Confounding was addressed through prespecified multivariable adjustment. Residual and unmeasured confounding remain possible, as noted in the Discussion.

Sample size rationale: Because the study invited the complete cohort of eligible Phase III students during the window, a formal a priori sample-size calculation for proportions was not required. For transparency, the achieved sample size and the proportion reporting the primary outcome are reported in the Results; with typical UG cohort sizes, this generally provides \geq 80% power to detect medium effect sizes (aOR \approx 1.8–2.0) for binary predictors with prevalence 0.3–0.6 at α =0.05.

Deviations from protocol: No deviations affecting primary outcomes or prespecified analyses occurred. Minor editorial edits followed instrument pretesting; these did not alter constructs or scoring.

Results

Participant flow and characteristics: A total of 312 Phase III MBBS students were surveyed; 164 (52.6%) reported definite/probable intention to pursue dermatology and 148 (47.4%) were no/unsure. The mean age was 22.4 ± 1.2 years;

148/312 (47.4%) were female and 182/312 (58.3%) were in Phase III Part 2. Prior dermatology elective/observership was reported by 62/312 (19.9%) and prior mentorship by 66/312 (21.2%). Baseline comparisons by intention are shown in Table 1.

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Perceptions of curriculum and teaching modalities

Most respondents endorsed dermatology's curricular relevance (not shown), but only 135/312 (43.3%) agreed that UG clinical exposure was adequate. Case-based learning was widely valued (207/312, 66.3% "agree"), whereas perceived sufficiency of OPD/bedside exposure was lower and mirrored the exposure adequacy item. Image-based assessment was viewed as appropriate by 230/312 (73.7%). Between -group differences for these teaching variables were small and not statistically significant (Table 2).

Specialty perceptions and career intention: Agreement with "favorable work–life balance" was 187/312 (59.9%), and 192/312 (61.5%) agreed that competitiveness limits feasibility. In bivariate analyses, students intending dermatology more often endorsed favorable work–life balance (70.7% vs 48.0%, χ^2 p<0.001) and were more likely to have completed an elective/observership (29.3% vs 9.5%, χ^2 p<0.001). They were less likely to agree that competitiveness limits feasibility (56.1% vs 67.6%, χ^2 p=0.038). Differences for patient impact and procedural variety were not significant (Table 3).

Multivariable analysis: In the logistic regression model (outcome: intends dermatology), intention remained independently associated with positive clerkship experience (adjusted odds ratio, aOR 4.09, 95% CI 2.44–6.86; p<0.001) and favorable work–life balance (aOR 3.04, 95% CI 1.80–5.14; p<0.001). Perceived competitiveness showed an inverse association (aOR 0.49, 95% CI 0.29–0.82; p=0.007). Prior elective/observership also predicted intention (aOR 4.73, 95% CI 2.34–9.54; p<0.001). Phase (Part 2 vs Part 1), sex, and mentorship were not statistically significant (Table 4).

Table 1: Baseline Characteristics by Career Intention

Variable	Intends Dermatology	No/Unsure	p-value
	(n=164)	(n=148)	
Age (years), mean \pm SD	22.4 ± 1.3	22.4 ± 1.1	0.755
Female, n (%)	78 (47.6%)	70 (47.3%)	0.963
Phase III Part 2, n (%)	101 (61.6%)	81 (54.7%)	0.220
Prior dermatology elective/observership, n (%)	48 (29.3%)	14 (9.5%)	0.000
Prior mentorship in dermatology, n (%)	33 (20.1%)	33 (22.3%)	0.638

Interpretation:

Table 1 profiles the cohort and benchmarks comparability between groups. Age and sex

distributions were similar. A numerically higher proportion of Part 2 students intended dermatology, though not significantly. Prior elective exposure was strongly enriched among students intending dermatology, suggesting either selection (students seek electives due to pre-existing interest) or a formative effect of authentic exposure.

Mentorship rates did not differ, indicating that general mentorship alone, without elective immersion, may be insufficient to shift career intention in this setting.

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Table 2: Curriculum Adequacy & Teaching Modalities By Intention

Item (Agree)	Intends Dermatology n/N	No/Unsure n/N (%)	p-value (χ²)
	(%)		
UG clinical exposure is adequate	69 (42.1%)	66 (44.6%)	0.654
Case-based learning is useful	107 (65.2%)	100 (67.6%)	0.642
OPD/bedside exposure is sufficient	69 (42.1%)	66 (44.6%)	0.654
Image-based assessment is appropriate	123 (75.0%)	107 (72.3%)	0.588

Interpretation: Students broadly endorsed case-based learning and appropriateness of image-based assessment, yet fewer agreed that clinical exposure or OPD time was sufficient. The absence of significant between-group differences suggests these curricular perceptions are shared regardless of

specialty intention and likely reflect structural features of the posting.

These findings point toward a delivery-intent gap: Student's value dermatology and its pedagogies, but constrained bedside opportunities may limit confidence-building, with potential downstream effects on readiness for general practice.

Table 3: Specialty Perceptions by Intention

Construct (Agree)	Intends Dermatology n/N (%)	No/Unsure n/N (%)	p-value (χ²)
Favorable work-life balance	116 (70.7%)	71 (48.0%)	0.000
High patient impact	123 (75.0%)	107 (72.3%)	0.588
Sufficient procedural variety	103 (62.8%)	104 (70.3%)	0.163
Competitiveness limits feasibility	92 (56.1%)	100 (67.6%)	0.038

Interpretation: Perceived work-life balance was also a significant lure with a significantly greater agreement between dermatology-intending students. Conversely, consensus that competitiveness limits viability was more prevalent among colleagues not planning dermatology than suggesting a discouraging impact of perceived

entry barriers. Perceptions of patient impact and procedural variety were positive among the group of respondents, indicating that macro level attitude toward the specialty of dermatology is positive; it is the perceived pathway complex, and not content and impact, that moderates intention.

Table 4: Multivariable Logistic Regression for Intention to Pursue Dermatology

Predictor	aOR (95% CI)	p-value
Positive clerkship experience	4.09 (2.44–6.86)	0.000
Favorable work–life balance (agree)	3.04 (1.80–5.14)	0.000
Perceived competitiveness (agree)	0.49 (0.29–0.82)	0.007
Prior elective/observership	4.73 (2.34–9.54)	0.000
Mentorship present	0.77 (0.41–1.45)	0.410
Phase III Part 2 (vs Part 1)	1.34 (0.80–2.24)	0.270
Female sex	0.88 (0.53–1.46)	0.629

Interpretation: Adjusted results highlight educationally actionable levers. Positive clerkship experience and beliefs about sustainable work–life balance markedly increased odds of intending dermatology, independent of sex and training stage. Perceived competitiveness showed a significant inverse association, consistent with a deterrent

effect even among otherwise interested students. Prior elective/observership remained a strong, independent correlate, supporting elective structures as potential catalysts for informed, sustained interest when coupled with high-quality supervision and realistic counseling.

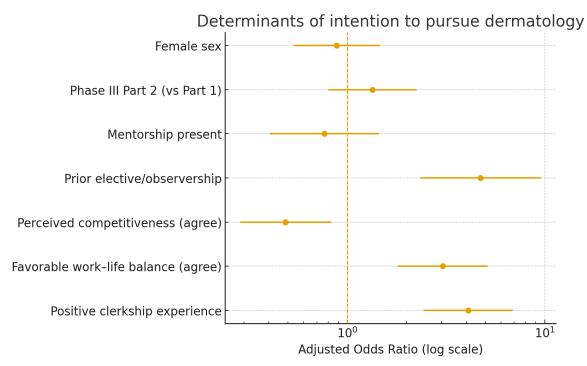


Figure 1: Determinants of Intention to Pursue Dermatology—Interpretation.

Interpretation: The forest plot shows that intention to pursue dermatology was most strongly associated with positive clerkship experience and perceived favorable work—life balance, each conferring markedly higher adjusted odds of intention. Prior elective/observership also independently increased intention. In contrast,

agreement that competitiveness limits feasibility was inversely associated with intention (aOR <1), indicating a deterrent effect. Sex, training stage (Phase III Part 2 vs Part 1), and mentorship alone displayed confidence intervals crossing unity, suggesting no independent association after adjustment.

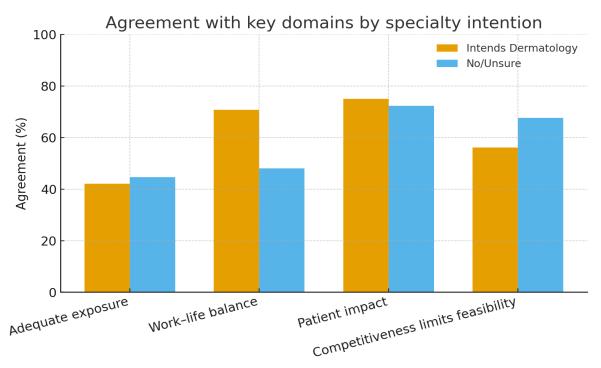


Figure 2: Stacked bar chart of Likert responses (Agree/Neutral/Disagree) for key domains: curricular exposure adequacy, work—life balance, patient impact, competitiveness.

Suggested layout: percentage on y-axis; domains on x-axis; stacked categories.

Interpretation: The asymmetries are implied by the stacked distribution: there is a high level of agreement between intenders regarding work-life balance, whereas the level of agreement between non-intenders regarding competitive barriers is higher. The two groups also support the effect of dermatology, whereas the sufficiency of clinical exposure has a lower consensus rate. This graphic structure confirms a two-pronged approach of intervention: developing genuine clinical exposure to develop a sense of competence and removing-perceived barriers to access by open-counseling trajectories of training, seats, and preparing opportunities.

Discussion

This cross-sectional survey of senior MBBS students in a large teaching hospital in central India revealed that dermatology was popularly considered important to general practice but less than half said that undergraduate (UG) clinical exposure was sufficient. This relevanceexposure gap reflects the multi-institutional review of evidence to reveal that although students acknowledge the burden and pervasiveness of dermatology in the ambulatory setting, time in the curriculum and time with supervised patients is frequently limited [14]. Under the competencybased medical education (CBME) model in India, our results demonstrate the need to combine imageenhanced instruction with secured outpatient immersion and organized bedside supervision in such an arrangement that image pattern recognition becomes centred with clinical logic and communicative interactions [2,5,6].

Two of the actionable signals that were educative. First, intention to pursue dermatology had the most significant independent relation with positive clerkship experience, in line with the literature suggesting that genuine and mentored exposure can inform the short-term engagement decision-making process, as well as the long-term specialty decisionmaking process [1,3,7–9]. Second, a positive worklife balance was also positively correlated with intention independently, which was consistent with decades of specialty-choice studies in which lifestyle factors are among the most significant factors (as well as mentorship and perceived patient impact). All these trends imply that enhancing the quality, rather than the quantity of the UG dermatology posts (i.e., predictable supervision, feedback, teaching by peers, and the possibility of conducting basic examinations and counseling) could both enhance competence in the entire group and retain the interest of the students who are truly motivated [5,7 9].By contrast, perceived competitiveness and limited seats showed a negative association with intention. This mirrors reports from India, Europe, and North America that dermatology's perceived "access barrier" can deter

otherwise interested students [7,11,13,14]. Counseling that offers transparent information about training pathways, realistic seat availability, scholarship opportunities, and preparatory strategies electives, (e.g., research auality improvement projects, teaching assistantships) may mitigate discouragement while maintaining fairness. Notably, sex and training stage were not independently associated with intention, echoing recent analyses that find narrowing historical gender gaps in perceived access, at least at the UG stage, when curricular opportunities are equitable [11,13,15].

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It is noteworthy that patient-impact and procedural-variety items received high agreement across groups but did not differentiate intention. This pattern implies that macro-level attitudes toward dermatology are broadly positive; what modulates intention are proximal, "gateway" factors: the lived quality of clinical exposure and expectations about feasibility. That interpretation is compatible with scoping reviews of UG dermatology showing that case-based learning, small-group OPD teaching, and structured electives increase perceived preparedness and satisfaction, but that bottlenecks in assessment and postgraduate seats still shape career planning [2,3,5,6,8,9].

Our findings also align with evidence that better UG dermatology education can improve outcomes even for graduates who will not specialize in the field. Skin conditions contribute substantially to global years lived with disability and psychosocial burden; improving first-contact recognition, triage, and counseling has public-health value independent of residency choice [4,16–18]. Embedding patient-reported outcome discussions and stigma-aware communication within postings may therefore yield immediate benefits in general practice settings [16,17].

Implications. We propose four pragmatic steps for departments operating under CBME: (1) protect supervised OPD/ward micro-rotations guarantee hands-on examination and brief feedback; (2) integrate case-based, image-enhanced sessions that directly map to day-one competencies; (3) formalize mentorship/near-peer networks with signposted elective slots; and (4) deliver transparent counseling on postgraduate pathways and competitiveness, including non-linear routes (e.g., research years) [2,5–8,11,13,19]. These are feasible within typical Indian teaching loads when scheduled as short, repeated "clinical sprints" rather than a single block posting.

Limitations: Single-center design and convenience timing may limit generalizability. Self-report introduces social-desirability bias, although anonymity and faculty-free administration should temper it. Cross-sectional associations cannot

establish causality; students with a priori interest may seek electives, inflating the observed elective—intention link.

Residual confounding (e.g., academic performance, prior exposure to skin disease in family/community) is possible despite prespecified adjustment. Future work could incorporate mixed methods, triangulating quantitative results with qualitative interviews to clarify how clerkship elements (autonomy, feedback quality, case-mix) shape intention, and could evaluate pre–post changes after micro-rotation or mentorship reforms [8,9,20–24].

Conclusion

The study identifies an actionable triad—high perceived relevance, constrained clinical exposure, and deterrence from perceived competitiveness—that departments can address through quality-focused postings, structured mentorship, and transparent counseling. Such reforms should elevate baseline dermatology competence across all MBBS graduates while enabling informed, equitable specialty selection [2,4–8,11,16,19].

Conclusion

Among senior MBBS students in a large Indore teaching hospital, dermatology was regarded as highly relevant today-one practice, yet clinical exposure within the undergraduate curriculum was perceived as insufficient. Specialty intention was strongly and independently associated with positive clerkship experience and perceptions of favorable work—life balance, while a belief that competitiveness limits feasibility exerted a deterrent effect.

These findings signify practical short-term leverages: the guard monitored OPD microrotations, bedside complement case dialogue with image optimization, institutionalize the mentoring and elective options and provide explicit direction to the justification courses and accession to seat. The reforms will be in a position to raise the minimum dermatologic competence of all graduates and help people make more informed career decisions.

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