Original Article

A Cross-Sectional Comparative Analysis of Phase-Wise Differences in Perceptions of Mentoring Program Among MBBS Students

Punky Joy[1], Abhima M B[2]

[1]Assistant Professor, Department of Pharmacology, Sree Narayana Institute of Medical Sciences, North Paravur, Kerala, India. [2]Professor and Head, Department of Pharmacology, Sree Narayana Institute of Medical Science, North Paravur, Kerala, India

Abstract

Background: Mentoring is increasingly recognised as an essential component of medical education, supporting students' academic growth, emotional well-being, and professional development. Structured mentoring programs help students navigate the transition from school to medical college, cope with academic pressures, develop effective study habits, and make informed career choices. While mentoring initiatives have been implemented in several Indian medical colleges, most research has focused on overall student satisfaction or first-year cohorts, without distinguishing between students at different stages of training. This study aims to compare perceptions of mentoring between early-phase (Phases I and II) and late-phase (Phases III, Part 1, and Part 2) MBBS students and interns. **Material and Methods:** A cross-sectional survey was conducted among MBBS students at Sree Narayana Institute of Medical Sciences, Kerala. Perceptions were assessed using a peer-validated questionnaire, administered through Google Forms, which collected demographic information and included a combination of open-ended, closed-ended, and Likert scale items. **Results:** Responses from 344 students (172 early phase; 172 late phase) were analysed. 25.58% (early-phase) and 17.44% (late-phase) students have attended a formal mentoring program before joining the course. Definitions of mentorship were comparable across both groups, though early-phase students placed more emphasis on guidance. Of six Likert questions on mentor qualities and mentorship relations, three showed significant phase-wise differences in perception. Significant difference ($p = 0.029$) was observed in the preference for informal mentors among early-phase students. Weekly meetings were significantly more preferred by early-phase students ($p = 0.007$), whereas late-phase students more often favoured meeting only when needed ($p = 0.078$). Statistically significant difference was found in the perception of infrequent meetings as a barrier, with early-phase students ($p = 0.0001$). Among the listed mentor qualities, only empathy showed a statistically significant difference, identifying it as a desired trait among late-phase students ($p = 0.025$). The overall evaluation ratings between early- and late-phase students were similar ($p > 0.05$), with most responses clustering around Good and Very good, and a minority rating it as Poor or Fair. **Conclusion:** The mentoring program was perceived as beneficial for student welfare, stress management, and academic support, with many students expressing intent to sustain mentor relationships for future personal and professional growth. Perceptions of mentoring differed significantly by training phase, suggesting the need for phase-specific mentoring strategies in medical curricula to maximise effectiveness and student satisfaction.

Keywords: Mentoring, Medical Education, MBBS Students, Early Phase, Late Phase, SSGP.

Received: 25 August 2025 **Revised: 15 September 2025** **Accepted: 16 October 2025** **Published: 21 November 2025**

Introduction

Mentoring involves a sustained, trusting relationship that supports the career and psychosocial growth of a mentee through dialogue, reflection, and the sharing of experience. The mentor fulfils roles such as advisor, coach, teacher, counsellor, and sponsor, acting within a context of mutual respect and empathy. Unlike supervision, which emphasises performance assessment and curriculum alignment, mentoring focuses on holistic development, self-awareness, and long-term support.[1,2]

The MBBS course in India is structured into three main phases regulated by the National Medical Commission (NMC): the Pre-Clinical Phase (Phase I) focusing on foundational subjects, the Para-Clinical Phase (Phase II), where clinical subjects are introduced and the Clinical Phase (Phase III), which is divided into Part I and Part II, with hands-on clinical training.[3] In the preclinical phase, students require help with transitioning from school to the intensive medical curriculum, developing effective study habits, time management, and coping with stress and homesickness.[4] Coming to clinical phase students, they seek academic support, focused guidance regarding specialty interests, research opportunities, and future career decisions.[5]

Regardless of the reason, the absence of mentorship makes it harder for students to navigate the challenges of medical college effectively. Mentoring program provides a platform for the

Address for correspondence: Dr. Punky Joy, Assistant Professor, Department of Pharmacology, Sree Narayana Institute of Medical Sciences, North Paravur, Kerala, India
E-mail: punkyjoy@hotmail.com

DOI:
10.21276/amit.2025.v12.i3.195

How to cite this article: Joy P, Abhima MB. A Cross-Sectional Comparative Analysis of Phase-Wise Differences in Perceptions of Mentoring Program Among MBBS Students. Acta Med Int. 2025;12(3):880-885.

students to discuss matters that inspires their professional and personal development with their mentor.[6] With the growing recognition of mentoring as a valuable component of medical education,[7] the Kerala University of Health Sciences (KUHS) introduced the Student Support and Guidance Programme (SSGP) to promote academic growth, emotional well-being, and personal development.[8] At our institution, each MBBS batch of 150 students was divided into groups of ten, each guided by a faculty mentor from pre-clinical, para-clinical, or clinical departments. Mentors and mentees met at least once a month in a supportive environment to address academic challenges, build resilience, and enhance life skills. The mentors and mentees interacted with each other at least once a month during the program.

Although mentoring programs have been implemented in several Indian medical colleges, most studies focus on general student perceptions or first-year feedback without distinguishing between different training phases. The present study was therefore undertaken to address this gap by examining and contrasting the perceptions of early- and late-phase MBBS students towards a structured mentoring program.

Materials and Methods

Aims and objectives: The objectives of the study were to compare perceptions between early-phase and late-phase MBBS students

Study design: A cross-sectional analytical study was conducted at our institution between July and August 2025. All MBBS students are enrolled in the mentoring program from the beginning of their first year and continue until the completion of their internship. A total of 358 students, of varying ages and both sexes, who provided informed consent, were included in this study using convenience sampling. Students who did not complete the questionnaire were excluded from the analysis.

Sample size estimation: Sample size calculations were performed for a two-group comparison of proportions (early-phase vs late-phase). Assuming a baseline proportion of satisfactory mentoring of 65% and a detectable absolute difference of 15 percentage points (50% in the comparison group), two-sided $\alpha = 0.05$ ($Z_{1-\alpha/2} = 1.96$) and power = 80% ($Z_{1-\beta} = 0.84$), the required sample size per group was 170 (total 340).

The following formula was used for sample size estimation

$$n = \frac{(Z_{1-\alpha/2}\sqrt{2p(1-p)} + Z_{1-\beta}\sqrt{p1(1-p1)+p2(1-p2)})^2}{(p1-p2)^2}$$

Where $p=(p1+p2)/2$

Substituting p1= 65% and p2= 50%

yielded a minimum sample size of 169.12 ≈ 170 students.

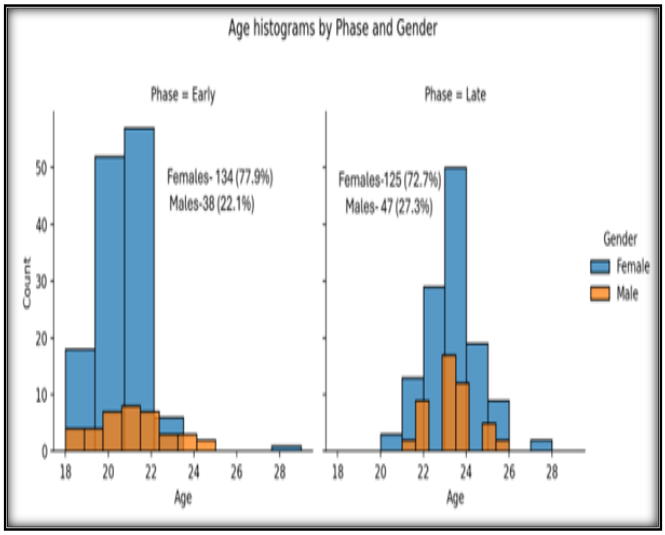
The study was initiated after obtaining approval from the institutional research committee and the institutional ethics committee (IEC/118/89). Students who fulfilled the inclusion/exclusion criteria were enrolled in the study. A questionnaire, consisting of demographic, open-ended, closed-ended, semi-closed-ended, dichotomous, and Likert scale questions, was developed through a literature review and validated by peer review. The questionnaire was sent to all study participants via email or WhatsApp. They were asked to complete the questionnaire. The questionnaire contained a set of questions which would assess their perception and experience of mentoring. The forms which the participants filled out were accepted. Confidentiality was maintained through anonymity of the questionnaire.

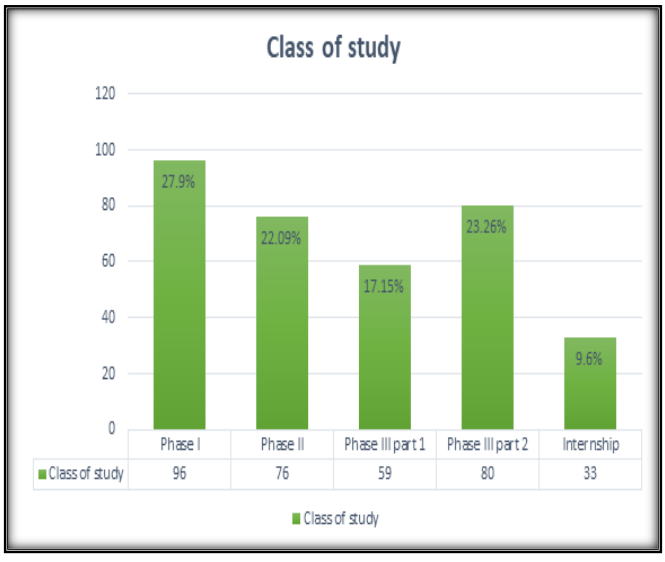
For analysis, participants were categorised as early-phase students (1st and 2nd years) and late-phase students (3rd year onwards, including final year and internship), reflecting the curricular transition from pre- and para-clinical to clinical training. These forms will be saved in Google Drive for further study purposes. This is a pre-planned subgroup analysis using the existing cross-sectional dataset.

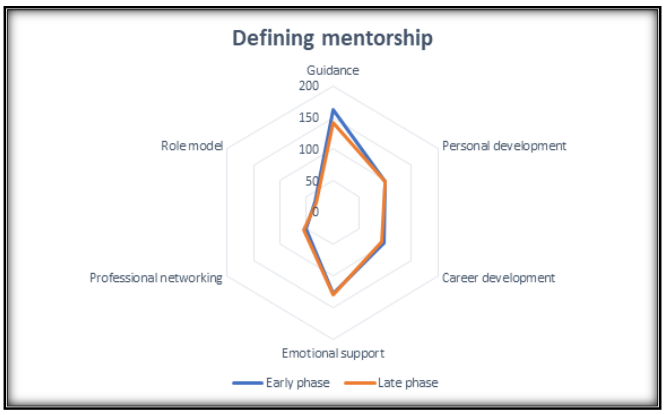
Results

A total of 358 students provided feedback. Based on the calculated sample size of 340, we selected 172 students from each of the early and late phases (total n = 344) for comparative analysis.

Age and gender by phase are shown in [Figure 1].







Mean age in the early phase group is 20.68±1.46 years and that of late phase group is 22.98±1.27 years. Class of study is demonstrated in [Figure 2].

25.58% of students from the early phase and 17.44% of students from the late phase have attended a formal mentoring program before joining the course. [Figure 3] presents a radar chart illustrating students' responses to the multiple-response question on defining mentorship.

Table 1: Presents the mean scores for students' general perceptions of mentoring and mentor qualities, based on 5-point Likert scale questions.

Question number	Questions	Early phase Mean±S.D	Late phase Mean±S.D	p_value
1.	The mentorship program is needed for the welfare of students.	4.24±0.61	3.99±0.87	0.0022159
2.	Mentorship is an extra burden on me.	1.98±0.78	2.17±0.74	0.0210623
3.	Mentor is readily available and accessible when I need guidance.	3.97±0.84	3.98±0.83	0.9116345
4.	I feel comfortable discussing academic concerns with mentor.	4.12±0.73	4.06±0.82	0.4740239
5.	Mentorship helped me in managing stress.	3.76±0.86	3.71±0.85	0.5879599
6.	I will keep in touch with my mentor for my future personal and professional development activities.	3.82±0.8	3.62±0.87	0.0271282

Responses to Likert scale items were expressed as mean ± standard deviation for each group (early-phase and late-phase students). Since the study compared two independent groups, phase-wise differences in mean scores were analysed using independent sample t-tests.

Table 2: shows the distribution of students' preferences regarding mentoring style.

S.N.	Mentor type	Early phase students	Late phase students	p-value
1	Peer mentor	40	56	0.151
2	Reverse mentor	85	100	0.379
3	Traditional mentor	34	48	0.183
4	Specialist mentor	67	54	0.135
5	Informal mentor	62	43	0.029

Data are presented as the number of students in each phase who preferred a given mentor type. Overall differences between early- and late-phase students were tested using the Chi-square test of independence. Individual comparisons for each mentor type were performed using Fisher's Exact test to account for small expected cell counts.

Table 3: Students' preferred frequency of meetings with their mentors is outlined.

	Mentoring frequency	Early phase	Late phase	p-value
1.	Monthly	109(63.37%)	117(68.02)	0.427
2.	Weekly	20(11.63%)	6(3.49%)	0.007
3.	Only when needed	27(15.70%)	41(23.84%)	0.078
4.	Rarely	16(9.30%)	8(4.65%)	0.137

Differences in the overall distribution of preferred mentoring frequencies between early- and late-phase students were assessed using the Chi-square test of independence. For individual frequency categories, Fisher's Exact test was applied, as some cell counts were small, to ensure an accurate estimation of significance.

Table 4: The desired mentor qualities as expressed by mentees are summarized.

SL No	Quality (early phase)	Number of students (early phase)	Number of students (late phase)	Chi- square	p-value
1.	Good listener	18 (10.5%)	10 (5.8%)	1.905	0.168
2.	Understanding	16 (9.3%)	10 (5.8%)	1.040	0.308
3.	More friendly	10 (5.8%)	12 (7%)	0.049	0.826
4.	More interactive	9 (5.2%)	10 (5.8%)	0.000	1.000
5.	Good communication skills	9 (5.2%)	8 (4.7%)	0.000	1.000
6.	Easily approachable	8 (4.7%)	12 (7%)	0.478	0.489

7.	Encouragement and support	8 (4.7%)	6 (3.5%)	0.074	0.785
8.	Availability	7 (4.1%)	6 (3.5%)	0.000	1.000
9.	Non judgemental	5 (2.9%)	3 (1.7%)	0.128	0.721
10.	Career guidance	2 (1.2%)	0	0.503	0.478
11.	Empathy	1 (0.6%)	9 (5.2%)	5.047	0.025

Barriers to effective mentoring as reported by students are shown in [Figure 4].

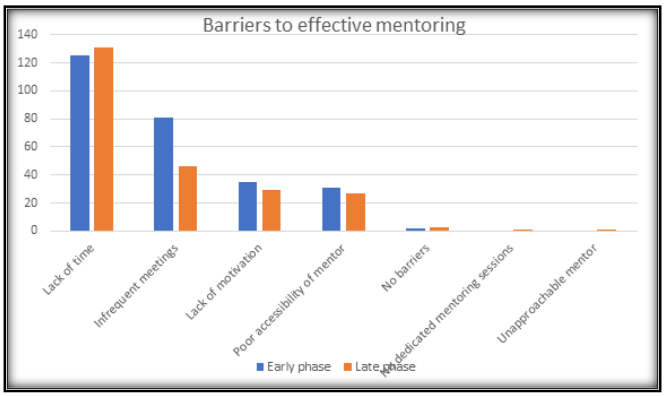
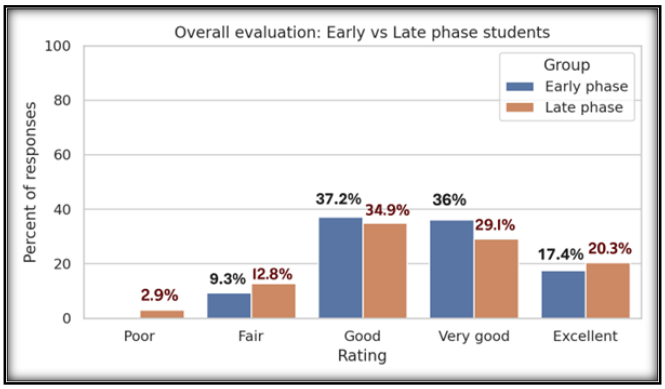


Figure 5 illustrates students' overall assessment of the mentoring program



Discussion

This study examined phase-wise differences in the perceptions of MBBS students regarding a structured mentoring program. The mean age of the late phase group (22.98±1.27 years) aligns with that of the study conducted by Minor and Bonnin.[2] The consistent female majority across both phases aligns with the growing trend in female enrolment in Indian medical colleges, particularly in Kerala, where females now account for approximately 65% of MBBS admissions — higher than the national average of 51%.[9]

Although students from all phases participated, phase I students formed the largest proportion compared to medical students from 4th year onwards, as noted in a study conducted by Kusner et al.[10] Most mentoring studies in medical education have been undertaken among first-year MBBS students. This is largely because new entrants face the greatest transition challenges in adapting to the demanding medical curriculum, coping with homesickness, and managing stress in a new environment, for which early psychosocial and academic support is beneficial.[11]

In our study, a higher proportion of early-phase students (25.6%) reported exposure to formal mentoring programs before commencing their MBBS studies compared to late-phase students (17.4%). Late-phase students may have had fewer opportunities for pre-medical mentoring, whereas early-phase entrants benefited from its recent expansion. This reflects growing recognition of pre-medical mentoring, which globally has been shown to enhance preparedness and confidence before entering professional courses.[12]

In our study, both early- and late-phase MBBS students most strongly associated mentorship with guidance and personal development, as reported in surveys conducted by Kusner et al. and Fallatah et al.[10,13] Early-phase students showed a slightly stronger emphasis on guidance and career development, as observed in the study by Ssemata et al.[14] In contrast, our research found that late-phase students placed a relatively greater weight on professional networking and emotional support. This aligns with a survey by Kusner et al.[10]

Mean Likert scores were consistently above 3.5 across all domains [Table 2], indicating overall favourable perceptions. Our findings suggest that early-phase students place greater importance on mentoring, perceiving it as essential for welfare and for sustaining long-term developmental relationships. This is consistent with prior research by Sherikar et al, Kukreja et al and Ganguly et al among the first-year MBBS students.[11,15,16] In contrast, late-phase students, having already adapted to academic demands and clinical responsibilities as suggested by Kamarudin et al and Lian et al,[17,18] tended to view mentoring as burdensome, or it could be underutilization of the mentoring program as indicated by Esan et al.[19] Kandasamy et al. also noted challenges with disinterested mentees.[20]

The lack of difference in perceived mentor accessibility, comfort in academic discussions, and stress management suggests that the program provided consistent baseline support across phases. However, the stronger intent of early-phase students to maintain long-term contact highlights the potential for cultivating enduring mentoring relationships if engagement begins early, as emphasised in mentoring program evaluations by Kusner et al.[10]

When mentor type preferences were analysed phase-wise, we found that informal mentors were selected significantly more often by early-phase students compared to late-phase students (36.0% vs. 25.0%, $\chi^2 = 4.79$, $p = 0.029$). This preference for informal mentorship among juniors aligns with findings by Park et al., who observed that faculty mentors tended to exhibit a more general academic interest. In contrast, informal mentors engaged students across a broader range of educational and personal topics.[21] Similarly, Singh et al. reported that junior students are more comfortable interacting with near-peers, as they find them less intimidating than faculty and appreciate that these mentors have recently navigated similar challenges.[22] Unlike the study by Udhayakumar et al., where the majority of mentees preferred to have mentor-mentee meetings at least once a week or as and

when required,[23] both early and late phase students had a higher preference for once a month meetings, even though there was a significant difference in opinion of weekly meetings.

In both early- and late-phase groups, the most frequently reported barriers were lack of time, consistent with the findings of Kalen et al,[23] and infrequent meetings. Waseem et al,[24] similarly emphasised that time constraints remain a critical challenge requiring attention. Nimmons et al,[7] also observed that mentors themselves struggle to balance mentoring with their core clinical and academic responsibilities, with time limitations being a recurrent obstacle. Allocating protected time for mentoring is therefore recommended to promote more effective and sustainable mentor–mentee relationships. There is a statistically significant difference in the perception of infrequent meetings as a barrier between the early and late phases (Fisher's Exact Test, p-value = 0.0001). Esan et al. support this view, with students in the initial years needing frequent meetings while senior students, already more independent, tend to place less emphasis on frequent structured contact.[5]

Our analysis shows that students across both phases largely share similar expectations from their mentors, consistently valuing traits such as being a good listener, understanding, approachable, interactive, supportive, and good communicators. The only significant difference was in the emphasis on empathy, which was expressed more frequently by late-phase students. The greater focus on empathy among late-phase students may reflect their growing exposure to patient care, increased academic and emotional stress, and the need for compassionate role models as they transition to professional identity formation. As Bhatia et al. noted, students who experience empathy and genuine care from their mentors are more likely to develop into compassionate individuals and empathetic physicians.

In contrast to the study by Kamarudin et al., which found that year-2 students rated higher in the perception of mentoring than final-year students,[17] there is no statistically significant difference in the proportion of students giving "Fair," "Good," "Very Good," or "Excellent" ratings between the early phase and late phase groups. However, the late-phase group has a significantly higher proportion of "Poor" ratings compared to the early-phase group.

Younger students often require support for transition and adjustment, while older students may seek guidance focused on their careers. The findings of our study underscore that the needs for mentoring evolve as students progress from pre-clinical to clinical training. Hence, early-phase students may benefit from structured and regular sessions, while late-phase students are better served by flexible, autonomy-supportive models that ensure mentor accessibility.

Limitations of the study: This single-institution, cross-sectional study relied on self-reported perceptions obtained through convenience sampling, which may limit generalizability and introduce bias. Differences in mentor style and frequency of interaction were not controlled, and the lack of longitudinal follow-up prevents assessment of how perceptions evolve.

Conclusion

This study addressed a key literature gap by comparing mentoring perceptions across early- and late-phase MBBS students in India, using a large sample and a validated questionnaire to provide comprehensive, phase-specific insights. Understanding these differences is essential to designing effective, stage-appropriate mentoring strategies that address the unique challenges faced by early- and late-phase students.

Acknowledgement

Student Support and Guidance Programme, Kerala University of Health Sciences

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Akrimi S, Bould MD. Mentoring in Medical Education. Update Anaesth. 2022 May;36(Special Edition):47–53.
2. Minor S, Bonnin R. What Do Medical Students Want From a Mentor? PRiMER [Internet]. 2022 Sept 8 [cited 2025 Sept 1];6. Available from: https://journals.stfm.org/primer/2022/minor-2022-0009/
3. Competency-Based Medical Education Curriculum (CBME) Guidelines- National Medical Commission.
4. Mat Nor ZM, Yusoff SBM, Abdul Rahim FA. Characteristics of mentoring programmes in the early phase of medical training at the Universiti Sains, Malaysia. J Taibah Univ Med Sci. 2017 Aug;12(4):343–8.
5. Esan O, Esan O, Toluhi D, Adepoju A, Oyelakin D, Odia O, et al. Mentoring Prevalence and Need among Pre-clinical and Clinical Medical and Dental Students in a Nigerian University. Br J Med Med Res. 2016 Jan 10;18(2):1–12.
6. Wu J, Olagunju AT. Mentorship in medical education: reflections on the importance of both unofficial and official mentorship programs. BMC Med Educ. 2024 Oct 29;24(1):1233.
7. Nimmons D, Giny S, Rosenthal J. Medical student mentoring programs: current insights. Adv Med Educ Pract. 2019 Mar;Volume 10:113–23.
8. MKC Nair, Dr SK Harikumar, Dr Leena ML, Dr Ajith Kumar K. A Holistic Student Guidance & Support Initiative of KUHS, training module for Nodal Faculty Members. 1st ed. Kerala University of Health Sciences; 2016.
9. Nair P. In Kerala, 65% MBBS students are girls; National average is 51%. Times of India. 2023 Jan 8;
10. Kusner JJ, Chen JJ, Saldaña F, Potter J. Aligning Student-Faculty Mentorship Expectations and Needs to Promote Professional Identity Formation in Undergraduate Medical Education. J Med Educ Curric Dev. 2022 Jan;9:23821205221096307.
11. Kukreja S, Chhabra N, Kaur A, Arora R, Singh T. Introducing mentoring to 1st year medical students of a private medical college in North India: A pilot study. Int J Appl Basic Med Res. 2017;7(5):67.
12. Atkins K, Dougan BM, Dromgold-Sermen MS, Potter H, Sathy V, Panter AT. "Looking at Myself in the Future": how mentoring shapes scientific identity for STEM students from underrepresented

groups. Int J STEM Educ. 2020 Dec;7(1):42.
13. Fallatah HI, Soo Park Y, Farsi J, Tekian A. Mentoring Clinical-Year Medical Students: Factors Contributing to Effective Mentoring. J Med Educ Curric Dev. 2018 Jan 1;5:2382120518757717.
14. Ssemata AS, Gladding S, John CC, Kiguli S. Developing mentorship in a resource-limited context: a qualitative research study of the experiences and perceptions of the makerere university student and faculty mentorship programme. BMC Med Educ. 2017 Dec;17(1):123.
15. Sherikar R, Raju VSR, Srinivas C. Introduction and Evaluation of Mentorship Program for 1st Year MBBS Students. Int J Physiol. 2019;7(3):160.
16. Ganguly A, Ghosh A, Das S, Sarkar N, Ghose G. A Pilot Study to Introduce Mentoring to 1st-year Medical Students at a Private Medical College in Eastern India. Asian Pac J Health Sci. 2022 June 25;9(4):112–5.
17. Kamarudin MA, Md Shah SAM, Ismail NAS, Yen TP, Shamsul AS, Che Razali HI, et al. Perceptions of Mentors and Mentees towards the Mentoring System at the Universiti Kebangsaan Malaysia Medical Centre. Educ Med J. 2021 June 30;13(2):55–70.
18. Lian C, Ommar N, Fern J, Ismail S, Sharifudin T, Hwan W. Perception Of The Mentor-Mentee System Among Medical Students Of The Faculty Of Medicine And Health Sciences, Universiti Malaysia Sarawak. Educ Med J. 2013;5(2):e29–37.
19. Esan O, Esan O, Toluhi D, Adepoju A, Oyelakin D, Odia O, et al. Mentoring Prevalence and Need among Pre-clinical and Clinical Medical and Dental Students in a Nigerian University. Br J Med Med Res. 2016 Jan 10;18(2):1–12.
20. Kandasamy S, Gopalakrishnan S, Elangovan H, Muthukumar G. Evaluation of a formal mentorship program in government medical college using Delphi technique: Explanatory sequential mixed method study. Muller J Med Sci Res. 2025 Jan;16(1):46–52.
21. Park JJH, Adamiak P, Jenkins D, Myhre D. The medical students' perspective of faculty and informal mentors: a questionnaire study. BMC Med Educ. 2016 Dec;16(1):4.
22. Singh S, Singh N, Dhaliwal U. Near-peer mentoring to complement faculty mentoring of first-year medical students in India. J Educ Eval Health Prof. 2014 June 30;11:12.
23. Udhayakumar KP, Adhimoolam M, Kuppusamy T. Exploration of mentees' perception of mentoring among Undergraduate medical students: A Cross-sectional Study. Natl Board Exam J Med Sci. 2023;425–40.