



Research Article

Section: Community Medicine

Impact and Perception of the Foundation Course in CBME: Insights from Medical Students

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ABSTRACT

Background: The Foundation Course is a structured introductory program introduced in India's medical education system to assist first-year medical students in transitioning to the rigorous academic environment. The course includes orientation, skill-building, professionalism, community engagement, and extracurricular activities, aiming to prepare students for future medical education and practice. However, a review of the existing literature indicates a lack of data on students' perspectives regarding the effectiveness of the Foundation Course. In this background, this study was taken up to find out the course's impact from the students' perspectives. The findings of this study could facilitate necessary modifications and enhancements to the program in future. **Methods:** A cross sectional study was conducted among 1st year and 2nd year medical students in MOSC medical college which come under KUHS (Kerala University of Health and Sciences) after getting ethical clearance. A total of 191 students were enrolled in the study after getting digital informed consent by considering the inclusion and exclusion criteria using universal sampling method. Information regarding the students' perception on conduct, objectives and modules of foundation course was collected using a pretested, semi-structured questionnaire by Google forms. **Results:** In this study, 62% of first-year medical students found the foundation course effective in easing their transition into medical education, with equal satisfaction regarding its conduct. Additionally, 64% felt it improved clinical exposure, communication, and problem-solving skills, while 60% were satisfied with the module content aimed at essential skill-building. No significant change in students' perceptions was observed one year after completing the course. **Conclusions:** The Foundation Course effectively aids students in acquiring essential skills and adapting to medical school. However, adjustments, such as enhancing practical exposure and clinical interaction, could further optimise its relevance. Regular feedback from students can help refine the curriculum to better meet their educational needs.

INTRODUCTION

The Foundation Course is an introductory program developed by the Board of Governors, superseding the Medical Council of India, aimed at facilitating the transition of first-year medical students into the academic and professional landscape of medical education. Given that medical students come from diverse educational backgrounds, this course serves as a bridge, helping them adapt from a traditional school environment to a demanding professional program. Spanning approximately one month, the course provides

students with essential knowledge, skills, and attitudes needed for their medical training. Key components of the course include: 1) Orientation to the institution, teaching schedules, personnel, patients, and their relatives 2) Fundamental skills deemed essential for healthcare personnel 3) Skill enhancement initiatives to support students from various backgrounds 4) Opportunities for sports and extracurricular activities 5) Training in professionalism and ethics 6) Field visits to community health centres [1, 2].

By incorporating these modules, the Foundation Course aims to equip students with the skills necessary for success in their medical education. Prior to the introduction of the Foundation Course in the MBBS curriculum, traditional education methods presented several limitations. A significant challenge was the abrupt transition from high school to an intensive medical environment, which often left students struggling to navigate the complexities of medical studies. The conventional MBBS curriculum placed excessive emphasis on theoretical knowledge, neglecting practical and clinical skills. As a result, students had minimal exposure to patient care and community health settings during the early stages of their training, leaving them ill-prepared for real-world medical practice. Additionally, the lack of structured support in areas such as stress management and time management contributed to heightened pressures in medical school, leading to burnout and diminished academic performance. These challenges underscored the necessity for the Foundation Course, which has since been implemented to address these gaps [3, 4].

The implementation of Foundation Courses has demonstrated significant improvements in teaching effectiveness and student engagement. Students are now more involved in advanced topics earlier in their education, benefiting from a stronger grasp of fundamental knowledge. The Foundation Course promotes a more gradual and structured learning approach, enhancing the logical flow of education by bridging gaps in foundational knowledge before advancing to complex subjects. This smoother transition has increased student motivation and commitment to their studies. Additionally, the course has improved clinical exposure, communication training, and problem-solving skills compared to previous curricula. However, a review of the existing literature indicates a lack of data on students' perspectives regarding the effectiveness of the Foundation Course. In this background, this study was taken up to find out the course's impact from the students' perspectives. The findings of this study could facilitate necessary modifications and enhancements to the program in future.

AIM AND OBJECTIVES

Aim:

To know the student's perception on effectiveness of foundation course.

Objectives:

1. To evaluate the students perception on effectiveness of foundation course.
2. To compare the student's perception immediately after foundation course and 1 year post the foundation course.

METHODOLOGY

Materials and Methods:

Methods:

a. Study Place: MOSC Medical College, Kolenchery.

b. Study population: Medical students who attended foundation course in Central Kerala.

c. Study subjects: 1st year and 2nd year medical students of MOSC Medical College, Kolenchery who attended foundation course.

d. Study period: 3 months

e. Study design: Cross-sectional study

f. Sample size:

$$n = 4pq/d^2$$

$$p = 0.984^4, q = 0.016, d = 20\%, \text{ (Prevalence} = 98.4\% \text{ from Reference 4)}$$

$$n = 4 \times 0.984 \times 0.016 / (0.2)^2 = 157$$

Assuming non responder's rate of 10% = 10% of 157 = 157 + 16 = 173

g. Sampling method: Universal sampling

h. Inclusion and exclusion criteria:

Inclusion criteria:

1st year and 2nd year medical students who attended foundation course during their first year training course

Exclusion criteria:

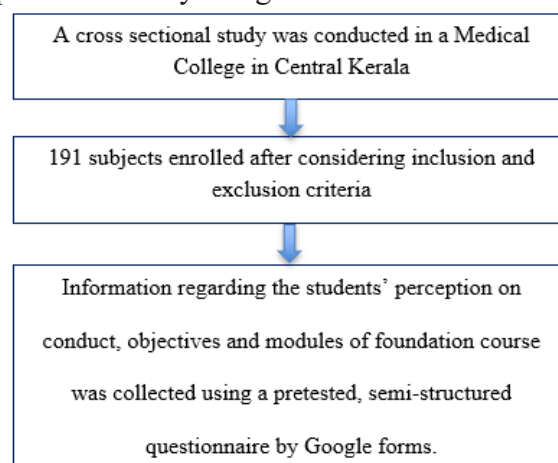
Students who did not attend the foundation course

i. Study tool:

Pretested, semi-structured questionnaire with questions regarding conduct, objectives and modules of foundation course.

Methodology:

A cross sectional study was conducted among 1st year and 2nd year medical students in MOSC medical college which come under KUHS (Kerala University of Health and Sciences). A total of 191 students were enrolled in the study (200 students were sent the questionnaire but only 191 responded) after getting digital informed consent by considering the inclusion and exclusion criteria using universal sampling method. Information regarding the students' perception on conduct, objectives and modules of foundation course was collected using a pretested, semi-structured questionnaire by Google forms.



Statistical Analysis:

All categorical variables were summarized as frequency and percentage and all quantitative variables were summarized

using median and interquartile range. Mann Whitney test was used to compare the medians. Statistical analysis was performed using EZR software.

Ethical Aspects:

- Ethical clearance was obtained from Institutional Review Board.
- Digital informed consent was taken from the study subjects.
- ICMR guidelines for research studies were followed during the entire study.

- The confidentiality of the information will be maintained

RESULTS

The study included 191 students from 2022 and 2023 batches of a medical college in Central Kerala. The mean age of the study subjects was 20.4 ± 1 . The total number of subjects ranged between the ages 18 to 24. The study showed that 31.9% of the study subjects were males and 68.1% of them were females.

Table 1: Distribution of Study Participants According to their Perceptions of how the Foundation Course was Conducted (N=191).

Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
The entire foundation course was conducted seriously and earnestly	74 (40.2)	35 (19)	70 (38)	5 (2.7)	0
The course (lectures, workshops, visits etc.) was well planned and schedule of different activities were informed well in advance	91 (49.2)	35 (18.9)	52 (28.1)	6 (3.2)	1 (0.5)
The duration of the course each day was ideal and sufficient to cover all necessary topics	89 (48.4)	31 (16.8)	55 (29.9)	8 (4.3)	1 (0.5)
The course contents were clear, illustrated with adequate examples and met with my expectations	83 (44.9)	24 (13)	65 (35.1)	13 (7)	0
The teaching aids and technology were effectively used	95 (51.4)	29 (15.7)	54 (29.2)	5 (2.7)	2 (1.1)
The course material handed out was adequate	81 (43.8)	21 (11.4)	69 (37.3)	13 (7)	1 (0.5)
The instructors encouraged interaction and were helpful	96 (51.9)	31 (16.8)	55 (29.7)	2 (1.1)	1 (0.55)
Exposure to clinical settings were adequate	84 (45.4)	22 (11.9)	62 (33.5)	14 (7.6)	3 (1.6)
The hands-on practical sessions (e.g., simulations, role-playing) included in the Curriculum was satisfactory.	91 (49.7)	33 (18)	50 (27.3)	7 (3.8)	2 (1.1)
The duration of the foundation course is adequate	73 (40.3)	23 (12.7)	74 (40.9)	8 (4.4)	3 (1.7)

* Figure in parenthesis indicate percentage

In table 1, around 40.2% study subjects strongly agreed that the foundation course was conducted seriously and earnestly, 49.2 % felt that the course (lectures, workshops, visits etc.) was well planned and schedule of different activities were informed well in advance, 51.9 % strongly agreed that the

instructors encouraged interaction and interaction was helpful, 51.4% subjects strongly agreed that the teaching aids and technology were effectively used, 49.2% strongly agreed that the course was well planned and 40.3% were happy with the duration of the foundation course.

Table 2: Distribution of Study Participants Based on their Perceptions of Whether the Objectives of Foundation Course were Met (N=191).

Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
The course was useful for students to transit from Pre-University to Medical School.	73 (38.2)	29 (15.2)	67 (35.1)	13 (6.8)	1 (0.5)
The foundation course oriented the MBBS students to all aspects of the medical college environment course and medical profession.	84 (44.0)	26 (13.6)	57 (29.8)	15 (7.9)	1 (0.5)
The foundation course provided adequate opportunity for peer and faculty interactions and an overall sensitization to the various learning methodologies.	93 (48.7)	24 (12.6)	54 (28.3)	9 (4.7)	3 (1.6)
The foundation course equipped the students with certain basic and important skills required for patient care and enhanced their communication, language, computer and learning skills.	91 (47.6)	18 (9.4)	60 (31.4)	11 (5.8)	2 (1.0)
The foundation course introduced me to the basic and essential values of professionalism and ethics.	104 (54.5)	27 (14.1)	48 (25.1)	3 (1.6)	1 (0.5)
Sensitization to National Health goals and policies/ health Care systems/ community health etc was very essential and helped me to gain an overall perspective of my role in future health care.	95 (49.7)	29 (15.2)	49 (25.7)	8 (4.2)	2 (1.0)
The basic skills module which included skills in Basic Life Support, First Aid, Universal precautions and biomedical waste was important.	98 (51.3)	42 (22.0)	36 (18.8)	2 (1.0)	4 (2.1)
The opportunities to interact with patients and patient attendants helped me to initiate myself in the art of communication.	83 (43.5)	33 (17.3)	49 (25.7)	9 (4.7)	7 (3.7)
The sports and extracurricular activities conducted helped me to understand the importance of work-life balance.	93 (48.7)	27 (14.1)	46 (24.1)	11 (5.8)	5 (2.6)
I am using the learning styles and strategies taught in the foundation course	81 (42.4)	19 (9.9)	68 (35.6)	11 (5.8)	4 (2.1)

In table 2, around 54.5% subjects felt that the foundation course introduced the basic and essential values of professionalism and ethics. 51.3% subjects were of the opinion that the basic skills module which included skills in Basic Life Support, First Aid, Universal precautions and biomedical waste was important, 49.7% subjects believed sensitization to National Health goals and policies/ health

Care systems/ community health etc was very essential and helped them gain an overall perspective of their role in future health care, 48.7% subjects strongly agreed that the sports and extracurricular activities conducted helped them understand the importance of work-life balance while only 38% subjects found the course useful to transit from Pre-University to medical school (Figure 1).

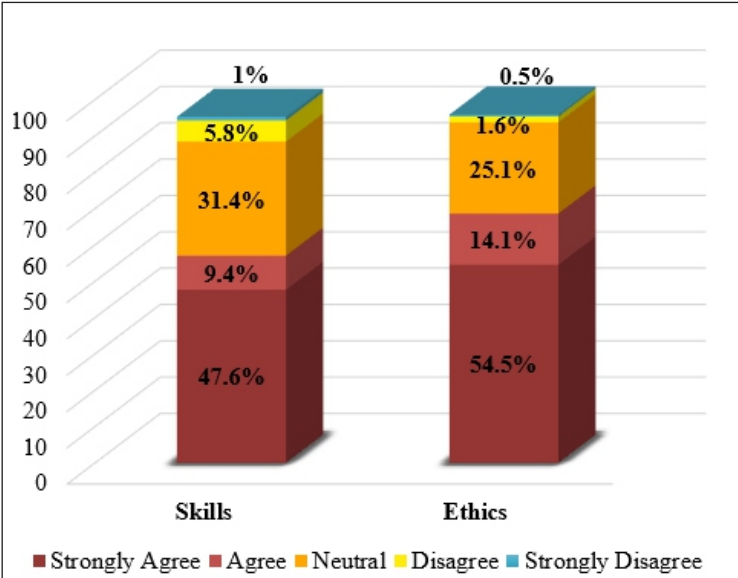


Figure 1: Multiple Component Bar Chart Showing Student's Perception of Whether the Sessions on Medical Skills and Ethics for were Adequate and satisfactory.

Table 3: Distribution of Study Participants Based on Their Perceptions on the Modules of Foundation Course (N=191).

Module	Excellent 4	Good 3	Satisfactory 2	Below Satisfactory 1	Poor 0
Orientation	27 (14.6)	85 (45.9)	67 (36.2)	6 (3.2)	0
Skill	33 (17.8)	86 (46.5)	60 (32.4)	5 (2.7)	1 (0.5)
Field visit to community health centre	55 (29.9)	84 (45.7)	31 (16.8)	11 (6)	3 (1.6)
Professional Development including Ethics, Sports and Extracurricular activities	28 (15.1)	81 (43.8)	58 (31.4)	17 (9.2)	1 (0.5)
Computer Skills	17 (9.2)	72 (39.1)	67 (36.4)	20 (10.9)	8 (4.3)
Language enhancement program	21 (11.4)	77 (41.6)	65 (35.1)	13 (7)	9 (4.9)

In table 3, 14.6% participants rated the orientation module as outstanding while 17.8% felt the same about the skills module. 29.9% participants found the field visits to community health centres to be highly effective. The

professional development module was rated as excellent by 15.1% participants, the computer skills training by 19.2% and the language enhancement programme by 11.4% (Figure 2).

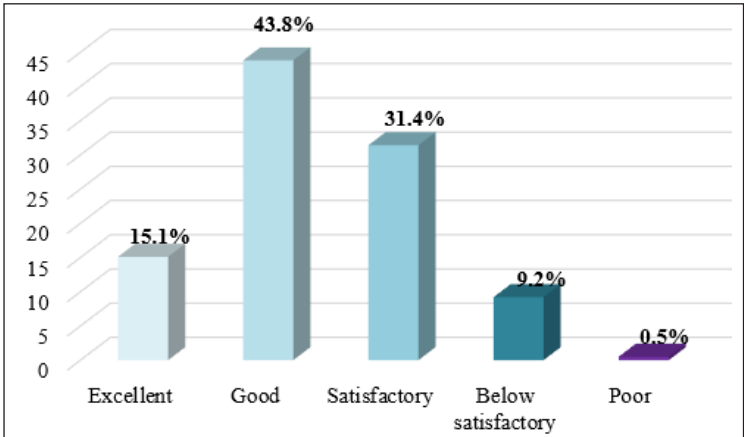


Figure 2: Bar chart Showing Student's perception of Whether the Professional Development Including Ethics, Sports and Extra-Curricular Activities were Adequate and Satisfactory.

An overall score above 104 was considered as a positive perception. 64% had a positive perception regarding perception and a score below 104 was considered as negative foundation course (Table 4 and Figure 3).

Table 4: Distribution of Study Participants Based on Their Perceptions on the Effectiveness of Foundation Course (N=191).

Perception	Frequency	Percentage (%)
Positive	123	64
Negative	68	36

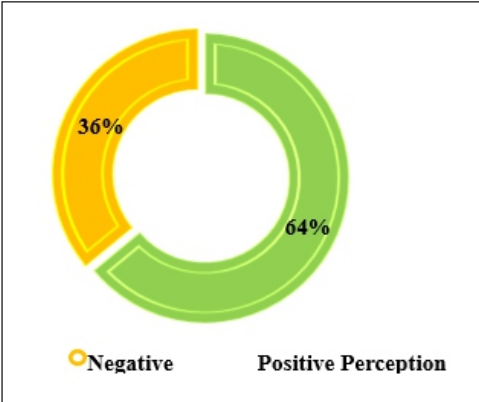


Figure 3: Donut Chart Showing Student's Perception of Overall Effectiveness of Foundation Course.

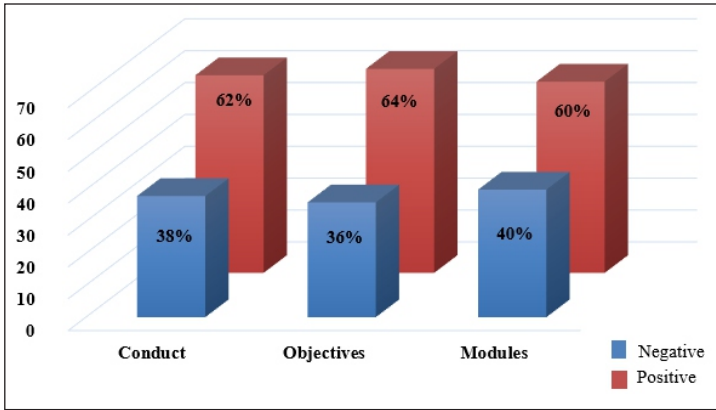


Figure 4: Bar Chart Showing Distribution of Study Subjects Based on Perception of Foundation Course

Table 5: Comparison of Perception of Study Subjects Immediately after Foundation Course and 1 Year Post Foundation Course (N=191).

Effectiveness of Foundation Course	Immediately after foundation course Median (Interquartile range) Q1-Q3	Perception 1 year later after foundation course Median (Interquartile range) Q1-Q3	P value
Conduct	39.0 (34.0- 48.25)	42.0 (33.75-46.0)	0.6
Objectives	40.0 (31.75-48.0)	42.5 (34.75- 48.25)	0.2
Modules	22.0 (18.0-24.0)	23.0 (19.0-24.25)	0.4

In table 5, median scores of students' perceptions were compared immediately after foundation course and 1 year post foundation course. There was no statistically significant difference found (Figure 4).

DISCUSSION

The Foundation Course aims to help first-year medical students' transition smoothly into medical education by covering essential skills, professionalism and community health. The implementation of Foundation Courses has demonstrated significant improvements in teaching effectiveness and student engagement.

In a study conducted by Mittal et al. in Bathinda, the positive feedback was 67%, which is comparable with the current study where the positive feedback is about 62%. This close alignment suggests that both initiatives were similarly effective in meeting participant needs and expectations. Despite minor variations, the results indicate that both the foundation program and the study shared core qualities valued by participants, such as relevance, structure, and engagement. This similarity in ratings suggests consistency in the quality of content delivery and applicability, reinforcing the effectiveness of both as beneficial exercises for participant growth and learning [5].

In the current study, 67.9% of students agreed that the course content was clearly presented with adequate examples, meeting their expectations, compared to 70% in Mishra et al.'s study at AIIMS Bhubaneswar with a sample size of 99. This slight discrepancy could be due to variations in content complexity; more abstract or challenging material might lower clarity ratings. Additionally, while only 13% of students in our study felt inadequately prepared with basic skills for patient care, Mishra et al. reported that 50% of students lacked proficiency in study skills, time management, and computer use. This difference may reflect disparities in resource availability and faculty support between the institutions [6].

In the study by Swati Shah et al. conducted in Maharashtra, positive feedback for clarity of presentation reached 98–99.5%, and adequacy of time for sessions was rated at

99.5–100%. In comparison, this study showed 66.2% positive feedback for time adequacy and 57.9% for clarity of presentation. This disparity may stem from interactive teaching methods that improve time efficiency, allowing deeper coverage in less time than traditional lectures. Structured sessions, including breaks, discussions, and Q&As, likely enhance reflection and make time feel more manageable, thereby improving perceptions of time adequacy [7].

In Sheetal Vyas et al.'s study conducted in Ahmedabad having a sample size of 150, 88.4% of students reported a smooth transition from pre-university to medical school. In the present study, only 53.4% expressed similar sentiments. The high satisfaction level in Vyas et al.'s study could reflect a course specifically designed to bridge knowledge gaps, build foundational medical skills, and orient students to the demands of medical education. Lower satisfaction in the study may result from insufficient emphasis on medical-specific skills, a gap between theoretical knowledge and practical application, or a lack of rigorous alignment with medical curriculum expectations [8].

In the current study, 62.3% of students reported using learning strategies from the course, closely matching the 65% knowledge gain in study skills found by Mittal et al conducted in Bathinda with a sample size of 100. Additionally, 68.6% of students acknowledged the course's influence on professionalism and ethics, aligning with Mittal et al.'s 66% gain. These findings underscore the course's role in instilling ethical values and essential learning techniques, fostering a sustainable approach to self-directed learning and supporting students' holistic development [5].

In the study by Deepika Velusami et al. conducted in Puducherry with a sample size of 150, 86.6% of students strongly agreed that they were sensitized to national health goals, compared to 64.9% in this study. This difference could be due to the foundation course's emphasis on national health policies, variations in students' prior exposure to health issues, and survey methodology differences, such as question phrasing or response scales. Contextual factors,

such as the academic environment, may also have influenced these outcomes [9].

Comparative studies, including those by Tinju James et al. conducted in Kerala with a sample size of 98, Shalini Sobti et al. which was conducted in Jammu with a sample size of 100, and the current study, reveal significant differences in student-perceived benefits and relevance of sports and extracurricular activities, with Tinju James et al. reporting a high 96.6% of students finding these activities beneficial, Shalini Sobti et al. showing a relevance rating of 69%, and the current study reflecting a lower 58.9%. These percentages underscore the variability in how extracurriculars are valued across educational settings and highlight potential influences of course structure, student priorities, and the integration of such activities into the curriculum [10, 11].

Srimathi T's study which was conducted in Chennai with a sample size of 250 found 98.5% positive feedback for basic life support training and 92.85% for hands-on sessions, compared to our findings of 73.3% and 67.7%, respectively. These variations may arise from differences in training quality, participant demographics, feedback collection methods, session structure, instructor expertise, and environmental factors [12].

In Chaitali Ashutosh et al.'s study conducted in Bangalore with a sample size of 134, 68% of students rated field visits as satisfactory, while our study showed a 98% positive response. This difference could be attributed to variations in study design, participant engagement, instructor support, and available resources [13].

In Swati N. Tikare et al.'s study conducted in Karnataka, 68.9% of students positively responded to opportunities for patient communication, compared to 57.3% in our study. This difference likely reflects variations in study focus—our study assessed overall clinical exposure, while Tikare et al. concentrated specifically on patient communication. Institutional differences in resources, curriculum implementation, and clinical access, along with student expectations and external factors such as COVID-19, may have impacted perceptions of clinical adequacy [14].

CONCLUSION

The present study was conducted among 191 medical students in a Medical College in Central Kerala.

CONCLUSION

The present study was conducted among 191 medical students in a Medical College in Central Kerala.

- In this study, 62% of the medical students found the foundation course to be effective in facilitating the transition of first-year medical students into the academic and professional landscape of medical education.
- 62% of the medical students were satisfied with how the foundation course was conducted.
- 64% of study subjects felt that the objectives of foundation course were met and has improved clinical exposure, communication training, and problem-solving skills.

- 60% of the study subjects were satisfied with the content of the different modules that aim to equip students with the skills necessary for success in their medical education.

- 64% of the study subjects had a positive perception regarding foundation course.

- There was no significant difference in perception of students regarding foundation course 1 year post foundation course.

RECOMMENDATIONS

- Incorporate more interactive elements like group discussions, problem-based learning (PBL), and peer teaching to actively engage all students and foster better participation.

- The schedule can be reconstructed to allow more time for practical sessions and in-depth exploration of key topics. A feedback loop should be established to adjust the daily schedule based on student needs.

- Enhance the use of multimedia tools like simulation software, digital models, and online resources. Additionally, provide training for faculty on using these technologies more effectively.

LIMITATIONS

- The study only includes 191 students from two batches (2022 and 2023) from one medical college which is a moderate sample size.

- The study relies heavily on self-reported data through questionnaires. Students may have responded in a way they thought was expected (social desirability bias), or may not have fully reflected on their experiences.

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