

Satisfaction of Undergraduate Medical Students with Family Medicine Clinical Rotation in Public Sector University of Pakistan

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ABSTRACT

Background: Family Medicine rotation for students during the undergraduate years can develop clinical competence, improve communication skills, and nurture person-centered care.

Objective: To assess undergraduate medical students' satisfaction with their family medicine clinical rotation at a public sector university in Pakistan.

Methods: A cross-sectional study of 316 MBBS students was conducted from May 2025 to September 2025 at the Family Medicine clinic of a public-sector university. Students who completed their Family Medicine rotation were included, while those who denied informed consent were excluded. A structured questionnaire was used to collect data. Descriptive statistics detailed satisfaction levels. Chi-square tests examined associations between demographic variables and satisfaction domains.

Results: A total of 316 students participated; 30.7% were male, and 69.3% were female, and 54.7% were third-year students, while 45.3% were final-year students. Overall satisfaction with the rotation was high, particularly regarding the professionalism of the learning environment (93.4%), faculty support (87.3%), and interactive teaching sessions (94.0%). Third-year students reported significantly higher satisfaction than final-year students across multiple domains. Following the rotation, 83.9% reported increased interest in family medicine, yet only 29.7% expressed intent to pursue it as a career.

Conclusion: Undergraduate students reported high satisfaction with the Family Medicine rotation, particularly in clinical skill development and faculty support. However, this did not convert into strong career uptake. Early and longitudinal integration, along with mentorship and policy-level incentives, are needed to support interest in family medicine as a career choice.

Keywords: Family practice, education, undergraduate, clinical clerkship, career choice.

INTRODUCTION

Family medicine is the medical specialty that provides first contact and continuous, comprehensive health care for individuals, families, and communities across their entire lifespan, including care for all genders and reproductive stages. This specialty is distinctive in its broad integration of biological, clinical, and behavioural sciences, ensuring a holistic approach to patient care. Family medicine engages in education and advocacy efforts to promote the health and well-being of all individuals while removing barriers to equitable care for all populations [1]. In routine practice, undifferentiated presentations are initially managed by family physicians. In the current era of an ageing population and an increasing burden of comorbidities, they serve as a link between specialties by working smoothly across community, outpatient, and hospital settings [2].

Looking at the global scenario, undergraduate training in Family Medicine has been shown to increase students' clinical competence, communication skills, understanding of patient-centred care, and appreciation of holistic practice in healthcare [3, 4]. Well-designed clerkships expose students to a variety of acute and

chronic conditions in outpatient settings, encourage continuity of care, and engage them in shared decision making. When students work in a community-based setup, it refines their diagnostic approaches and increases their confidence in handling undiagnosed cases [4, 5]. Experiences like these help learners understand and appreciate the broad scope of Family Medicine and its essential role in strengthening health systems [3].

Many recent studies have shown that three key factors make students satisfied with their clinical rotations. These include the quality of the supervision they receive, how comfortable they feel in the learning environment, and how interactive and relevant the teaching they receive is to real-life clinical work [6, 7]. The length of time they're placed in a particular setting and how it's structured can either make or break the quality of supervision and the chances they get to learn, which is why it's so important to make sure that the service they're providing doesn't get in the way of the learning, and that they get a good balance of continuity and the freedom to make their own decisions [7]. Another critical factor is the quality of the relationship between the student and their tutor, particularly within the model followed at our institution, in which students work under the close supervision of faculty during outpatient clinics, thus highlighting the role of mentoring, getting valuable feedback, and role modelling of the tutor [6]. Moreover, Family Practice

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settings serve as a learning platform for students, providing realistic exposure to primary care that can change how students think about it, thereby reinforcing the importance of holistic care [8].

Studies from the Middle East suggest that adding Family Medicine clerkships to undergraduate curricula has a positive impact on students' views of primary care and aligns their learning with the health system's needs [9]. In South Asia, particularly in Sri Lanka, students who've gone through the Family Medicine program have reported feeling much more ready to provide holistic care and more confident when managing complex conditions. They have a much more positive attitude towards doing community-based work, which all points to the value of structured primary care placements even in areas where resources are really limited [10].

The Pakistan Medical and Dental Council (PMDC) has made Family Medicine a compulsory subject in the MBBS curriculum, indicating clear emphasis on primary care and an intention to address the shortage of family physicians [11]. This change in policy highlights the appreciation of Family Medicine's ability to address the mounting burden of non-communicable diseases, patchy health services, and the utter shortage of primary care physicians. Regardless of the changes, there is limited data on students' evaluation of Family Medicine rotation experiences, mainly in public-sector universities where training of large numbers of medical students takes place. Locally, while studies show awareness of the existence of Family Medicine, many students lack interest in pursuing Family Medicine as a career due to differences in prestige, inadequate incentives, and doubts about future opportunities [12].

Looking at evidence from around the world and the region, it's the right time to examine how satisfied students are with Family Medicine rotations in the Pakistani context. Therefore, this study aimed to assess undergraduate medical students' satisfaction with their family medicine clinical rotation at a public sector university in Pakistan.

MATERIALS AND METHODS

This cross-sectional study was conducted at the Family Medicine clinic of a public-sector university in Pakistan over five months, from May 2025 to September 2025. The Institutional Review Board of the university provided ethical approval for the study (JSMU/IRB/2025/1028), and before the initiation of the questionnaire, all participants provided written informed consent. Confidentiality was maintained by making all responses anonymous, and only the principal investigator had access to the data.

The participants were third- and final-year MBBS students undergoing their official family medicine rotation. The Family Medicine rotation at our institution is structured differently for each year of study. Third-year students undergo a 4-day rotation, while final-year students complete an 8-day rotation. Each

batch consists of 15 students, and with class sizes of approximately 350 students per year, multiple batches are scheduled sequentially throughout the academic calendar. Students are placed in the Family Medicine outpatient clinic, where they participate in supervised patient consultations, bedside teaching, and case-based discussions. Students who completed their Family Medicine rotation were included, while those who refused to provide written informed consent were excluded. The sample was collected using convenience sampling.

To determine the sample size, the Open Epi sample size calculator for cross-sectional studies was used. According to a recent study, approximately 13% of medical students consider general practice as a career [13]. With a 95% confidence level and a 5% margin of error, the minimum required sample size was 174. The final sample size was 316 students, exceeding the calculated sample size to ensure statistical validity.

At the end of each Family Medicine rotation, data were collected from students face-to-face. To minimize response bias, questionnaires were self-administered and completed anonymously. The questionnaires were distributed and collected by independent administrative staff, ensuring that faculty did not have access to individual responses. The questionnaire had two parts. The first part noted the academic year and gender. The second part comprised a structured instrument, adapted from a previously validated 15-item questionnaire from a study in Sri Lanka, with minor modifications to reflect the local context [10]. Two senior Family Medicine faculty members reviewed the revised version, and their feedback was incorporated to ensure content validity. Pilot testing was conducted with 15 students to confirm clarity and feasibility. The questionnaire inquired about satisfaction across multiple domains, using a five-point Likert scale that ranged from "strongly satisfied" (5) to "strongly dissatisfied" (1). Two additional questions assessed students' perspectives on Family Medicine as a career; the first asked them to rate the extent to which their interest in Family Medicine increased after the rotation. They had to select options from "significantly," "moderately," "slightly," "not at all," to "no response". The second question asked about their intention to pursue Family Medicine in the future, with options to select "yes," "no," "not sure," or "no response." Reliability of the satisfaction scale was assessed using Cronbach's alpha after data collection. The study questionnaire is attached as a supplementary file.

The data was entered and analyzed in SPSS version 26. Descriptive statistics, including frequencies and percentages, were used to describe demographic information (academic year and gender) and career intentions. Satisfaction scores were summarized using mean \pm standard deviation. Comparison between demographic variables and satisfaction levels was

performed using the Chi-square test, with p-values <0.05 considered statistically significant.

RESULTS

A total of 316 undergraduate medical students participated in the study. Of these, 97 (30.7%) were male, and 219 (69.3%) were female. Regarding the year of study, 173 students (54.7%) were in their third year, while 143 students (45.3%) were in their final year.

The satisfaction scale demonstrated good Reliability (Cronbach's alpha = 0.83). Fig. (1) presents the distribution of mean satisfaction scores among third- and final-year students. The majority of students expressed satisfaction across most domains of the family medicine rotation. Although the majority of participants were female, gender did not have a significant effect on satisfaction scores across any questionnaire items.

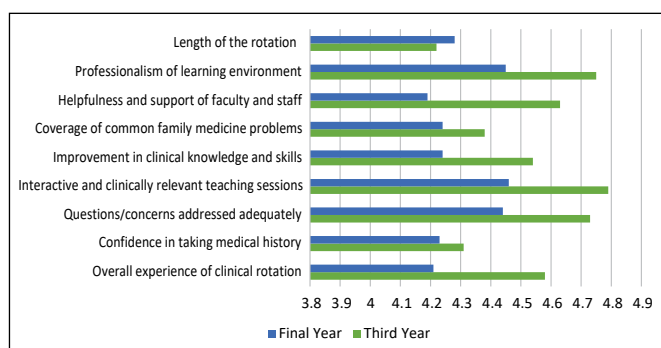


Fig. (1): Distribution of student mean satisfaction scores related to the family medicine rotation.

Overall satisfaction with the family medicine rotation was high in both groups. However, third year students consistently reported greater satisfaction than final year students in several domains, including the professionalism of the learning environment ($p<0.001$), support from faculty and staff ($p<0.001$), improvement in clinical knowledge and skills ($p<0.001$), interactive teaching sessions ($p<0.001$), adequacy of addressing questions ($p=0.001$), and overall experience ($p=0.005$). No significant differences were observed for the length of the rotation ($p=0.807$), coverage of common family medicine problems ($p=0.108$), or confidence in taking medical history ($p=0.0221$) (Table 1).

Following completion of the family medicine rotation, more than four-fifths of students reported some degree of increased interest in the specialty. Among them, 16.5% indicated their interest had increased significantly, 34.5% reported a moderate increase, and 32.9% described a slight increase. In contrast, 15.8% stated that the rotation had not increased their interest at all, while 0.3% did not respond.

When asked about their intention to pursue family medicine as a future career, 29.7% of students expressed a definite interest, whereas 63.3% reported they would

Table 1: Comparison of student satisfaction with family medicine rotation domains by year of study.

Items	Sub-groups	Year of study		p-value
		Third n(%)	Final n(%)	
Length of the rotation	Dissatisfied	10 (5.8)	07 (4.9)	0.807
	Neutral	18 (10.4)	14 (9.8)	
	Satisfied	145 (83.8)	122 (85.3)	
Professionalism of learning environment	Dissatisfied	02 (1.2)	03 (2.1)	*<0.001
	Neutral	04 (2.3)	12 (8.4)	
	Satisfied	167 (96.5)	128 (89.5)	
Helpfulness and support of faculty and staff	Dissatisfied	02 (1.2)	08 (5.6)	*<0.001
	Neutral	05 (2.9)	25 (17.5)	
	Satisfied	166 (95.9)	110 (76.9)	
Coverage of common family medicine problems	Dissatisfied	00 (0.0)	01 (0.7)	0.108
	Neutral	15 (8.7)	24 (16.8)	
	Satisfied	158 (91.3)	118 (82.5)	
Improvement in clinical knowledge and skills	Dissatisfied	00 (0.0)	01 (0.7)	*<0.001
	Neutral	10 (5.8)	14 (9.8)	
	Satisfied	163 (94.2)	128 (89.5)	
Interactive and clinically relevant teaching sessions	Dissatisfied	01 (0.6)	03 (2.1)	*<0.001
	Neutral	02 (1.2)	13 (9.1)	
	Satisfied	170 (98.3)	127 (88.8)	
Questions/concerns addressed adequately	Dissatisfied	00 (0.0)	05 (3.5)	*0.001
	Neutral	01 (0.6)	11 (7.7)	
	Satisfied	172 (99.4)	127 (88.8)	
Confidence in taking medical history	Dissatisfied	01 (0.6)	03 (2.1)	0.221
	Neutral	08 (4.6)	14 (9.8)	
	Satisfied	164 (94.8)	126 (88.1)	
Overall experience of clinical rotation	Dissatisfied	01 (0.6)	06 (4.2)	*0.001
	Neutral	07 (4.0)	18 (12.6)	
	Satisfied	165 (95.4)	119 (83.2)	
Increased interest in family medicine specialty after rotation	Significantly	20 (11.6)	32 (22.4)	*0.005
	Moderately	53 (30.6)	56 (39.2)	
	Slightly	68 (39.3)	36 (25.2)	
	Not at all	32 (18.5)	19 (13.3)	
Intention to choose Family Medicine as a future career	Yes	58 (33.5)	36 (25.2)	*0.001
	No	98 (56.6)	102 (71.3)	
	Not sure	17 (9.8)	05 (3.5)	

*Significant at $p<0.05$

not consider it. A further 6.0% were uncertain, and 0.9% did not respond.

DISCUSSION

This study explored undergraduate medical students' satisfaction with their Family Medicine rotation at a public sector university in Pakistan. Overall, student satisfaction was high, particularly in the learning environment, professionalism, faculty support, interactive teaching, and apparent improvement in clinical skills. The evidence supports the finding that students' views of the Family Medicine discipline are directly influenced by the clerkship experience, with a more favorable approach towards Family Medicine as a result of positive learning experiences [14]. District health service evaluations of Family Medicine rotations show improvement in decision-making and outcomes related to continuity of

care, which support the satisfaction observed in our study [15].

Students' focus on supportive supervision, role modeling, and interactive teaching reflects trends observed in integrated primary care rotations. At our institution, undergraduate students rotate through major departments, including Medicine, Surgery, Pediatrics, Gynecology/Obstetrics, and Emergency Medicine. While our study specifically examined Family Medicine, the high satisfaction reported highlights its distinctive contribution compared to other rotations, particularly in terms of continuity of care, supportive supervision, and interactive teaching opportunities [16]. In our study, students reported greater satisfaction and perceived competence when active learning strategies, such as bedside teaching, case-based discussions, and direct observation, were used. Previous studies have shown that these methods are integral to effective workplace learning [6-8]. Experiences in Family Medicine that are extended and community-based are found to build confidence and improve students' clinical reasoning, provided they are exposed to different presentations, long-term follow-ups, and collaborate with other health professionals [15].

In this study, third-year students reported higher satisfaction than final-year students. These findings are supported by a previous study showing that early exposure to Family Medicine sparks enthusiasm and positive attitudes. Still, as students move towards senior years and approach career choices, they evaluate rotations critically [13]. When exposed to Family Medicine early, especially in community-based settings, students receive learning experiences that help them incorporate a patient-centered approach [14, 16]. Given that third-year students reported higher satisfaction than final-year students, early and repeated exposure to Family Medicine rotations may help sustain enthusiasm and satisfaction into senior years [16].

In this study, most students reported that the Family Medicine rotation had a meaningful influence on their clinical understanding and practical competence, which is supported by earlier research highlighting that the exposure to Family Medicine during undergraduate years has educational benefits [15]. Rotations in community-based or distributed settings appear to foster diagnostic adaptability and strengthen patient-centered communication, especially when students encounter undifferentiated complaints or must follow up on chronic conditions [16]. When these clerkships are well organized and guided by supportive supervision, they help to create more favorable attitudes toward Family Medicine and enhance students' confidence in managing common primary care problems [14]. The skills gained through such experiences are not confined to Family Medicine alone and aid in building sound clinical practice in other disciplines as well, while highlighting the distinctive

contribution of Family Medicine in preparing graduates to address complex problems at the first point of contact.

Despite the generally positive feedback, only about one in three students (29.7%) expressed interest in pursuing Family Medicine as a future career. Comparable findings have been reported in Canada, where 31% of medical students indicated an intention to pursue Family Medicine following their rotation [5]. In contrast, in a private medical college in Karachi, only 13% of students expressed such interest [12]. A similar gap between satisfaction and specialty choice has been reported in several international contexts, where constructive educational experiences do not always lead to more graduates entering Family Medicine [5, 12]. Social and structural reasons are more influential than training satisfaction in many countries. For example, a study from Turkey found that discouraging factors for interns considering Family Medicine as a field included limited advancement opportunities and the perception of low prestige, indicating both systemic and reputational challenges within the profession [17]. Institutional support also matters; departments with stronger infrastructure, research opportunities, and visible endorsement from university leadership are more successful in motivating students and improving the overall image of Family Medicine [18]. Beyond institutional issues, broader cultural and personal considerations influence career preferences. Evidence from various settings suggests that students' long-term decisions are shaped by expectations for work-life balance, mentorship experiences, early exposure to inspiring role models, and the perceived social value of the discipline [19]. These factors help explain why satisfaction with an undergraduate rotation, although significant, may not, on its own, be sufficient to change established career aspirations.

Final-year students showed less interest in Family Medicine than third-year students in our study. As students progress further in medical school, their career choices are influenced by more competitive specialties, advancement opportunities, and the reputations associated with different fields. Since final-year students reported lower satisfaction and less career interest, structured mentorship and career guidance during the senior years may help maintain engagement with Family Medicine [14, 16, 18, 19].

Several challenges are faced in the South Asian region regarding Family Medicine education. These include inadequate representation of Family Medicine in undergraduate curricula, a shortage of trained faculty, and the specialty's undervaluation by society. To address these barriers, universities and health systems will require coordinated reforms so that Family Medicine training is aligned with the health needs of the population and universal health coverage goals [20].

This study adds to the sparse literature on student satisfaction with the Family Medicine rotation, especially in the context of a public-sector university in Pakistan. The strengths of the study include the use of a validated tool and the inclusion of several aspects of students' clinical rotation experiences.

The study, however, has some limitations. The study was conducted at a single institution; therefore, the findings cannot be generalized to other settings. The study had a cross-sectional design, which fails to capture changes in satisfaction among students over time. Another limitation is that the study employs only quantitative measurements of satisfaction. Further studies could benefit from multi-institutional, mixed-methods designs that follow students over time to provide in-depth insight into students' rotation experiences, satisfaction, and how these experiences translate into career choices.

CONCLUSION

This study reported higher satisfaction among undergraduate medical students with their family medicine rotation, particularly in professionalism, faculty support, interactive teaching, and perceived improvement in knowledge and skills. However, pursuing family medicine as a career was chosen by only a few students. To overcome this gap, it is essential to provide medical students with early, integrated exposure to family medicine while ensuring high-quality supervision and adequate exposure to diverse presentations in family medicine settings. Further work is needed to examine how institutional factors, such as incentives and career pathways, influence whether satisfaction with family medicine rotations translates into career choice. By aligning educational practices with workforce planning and regional policy priorities, we can cultivate a physician workforce focused on primary care and equipped to meet Pakistan's health needs.

ETHICS APPROVAL

Permission was taken from the institution's review board before the start of the study (JSMU/IRB/2025/I028). All procedures performed in studies involving human participants were following the ethical standards of the institutional and/or national research committee and the Helsinki Declaration.

CONSENT FOR PUBLICATION

Before the questionnaire was administered, all participants provided written informed consent.

AVAILABILITY OF DATA

The data can be provided by the corresponding author on request.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Declared none.

AUTHORS' CONTRIBUTION

TM: Study conceptualization and critical review of the initial draft; KAS, AMB: Designing of the study and critical review of the initial draft; KAS: Result analysis and investigation, manuscript drafting; AMB: Manuscript critical review and revision of the initial draft. All authors read and approved the final manuscript.

SUPPLEMENTARY MATERIAL

Supplementary material is available on the journal's website.

GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work the author(s) limitedly used ChatGPT (GPT-4, OpenAI) to get language suggestions and do minor proofreading in some parts of the manuscript. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

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