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Factors Influencing Specialty Decisions Among Pre-clerkship Canadian Medical Students: A Cross-Sectional Study

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Abstract

During medical school, students must carefully decide on a specialty that may shape the trajectory of their personal and professional lives. This cross-sectional survey examined how pre-clerkship medical students prioritize factors influencing specialty decision-making, including lifestyle, personal interest, clinical exposure, mentorship experiences, and financial expectations. An anonymous questionnaire with multiple-choice, Likert-scale, and open-ended questions was distributed to pre-clerkship medical students in the classes of 2027, 2028, and 2029 at Dalhousie University's Faculty of Medicine. Most respondents had not yet decided on a specific specialty; however, a large proportion expressed interest in primary care fields. Findings indicated that specialty preferences were most strongly shaped by lifestyle-related factors, specifically work-life balance, burnout risk, and training length. Personal interest was most frequently highly prioritized, followed by work-life balance and impact on patient care. In contrast, prestige and research opportunities were among the least influential factors. Financial considerations varied among respondents but were positively correlated with the importance placed on student debt and earning potential ($p < 0.01$, $\rho = 0.735$). Notably, the majority of respondents also reported concern about experiencing burnout in their future careers. Clinical exposure was identified as an important influence on specialty preferences, while systemic barriers emerged as a key consideration in students' perceptions of primary care. Overall, while lifestyle factors were central drivers of specialty decisions, students' priorities reflected a combination of personal, experiential, financial, and systemic considerations. These observations suggest that efforts to address primary care shortages may require interventions beyond those offered by medical schools. System-level challenges, such as administrative burden and workload, should also be considered when developing strategies to address physician distribution in Canada.

Categories: Family/General Practice, Other, Medical Education
Keywords: career choice, lifestyle, medical students, physician workforce, primary care, specialty decision-making

Introduction

Canada's public healthcare system is a pillar of its national identity, providing near-universal access to healthcare services [1]. Family doctors play a central role in this system, serving as patients' first point of contact and connecting them with specialists when needed. However, Canada continues to face significant challenges in meeting healthcare needs, including a shortage of family physicians, funding constraints, and limited support and resources [2]. These issues are further compounded by geographic disparities in physician distribution, with rural communities having fewer family physicians relative to their populations than urban communities [3].

These workforce challenges make it important to examine how medical students develop their specialty preferences. Perceptions of different specialties may begin to develop early in medical education. Vo et al. found that job satisfaction and lifestyle factors were valuable specialty qualities considered among first-year medical students at the University of Ottawa [4]. Understanding these early considerations is important because specialties shape physicians' future careers and, over time, may influence physician distribution across the healthcare system. Medical students must make this decision while considering a range of personal, educational, and professional factors. Identifying these priorities may therefore help medical schools and healthcare systems better support students in their career decision-making.

Although the number of Canadian medical school seats has gradually increased, residency position availability varies across specialties [5]. This creates a potential imbalance between the number of graduating medical students and the availability of residency seats in their preferred specialties. Family medicine presents an additional challenge: despite an increase in available residency positions, a declining percentage of Canadian medical graduates (CMGs) are selecting family medicine as their first-choice discipline, decreasing from 30.7% in 2022 to 26.4% in 2026 [6]. This trend occurs alongside a significant number of unfilled family medicine residency positions nationwide, with 268 positions remaining unfilled following the first iteration of the 2023 Canadian Residency Matching Service (CaRMS) match, despite an increase in available residency seats [7]. Canadian medical schools have introduced admissions pathways

and dedicated programs designed to increase the number of graduates entering primary care [8]. While these efforts may increase recruitment, the continued shortage of practicing family doctors raises larger concerns about the factors influencing students' specialty preferences and eventual career choices.

Recent Canadian evidence also adds to this concern. Myran et al. found that a large proportion of CMGs who matched to family medicine had ranked another specialty as their first choice [9]. The authors suggested that some of these graduates may pursue focused practices that better align with their interests, while those who go on to practice comprehensive primary care may be at greater risk of burnout due to poor career fit [9]. Because Canada's healthcare system relies heavily on family physicians as the foundation of primary care, the declining proportion of graduates selecting family medicine as their first-choice discipline presents a major challenge for the future of healthcare delivery in Canada [2,9]. These findings point to the importance of understanding how students perceive and prioritize the factors that shape specialty preferences.

Published research has identified a number of factors associated with specialty choice, including lifestyle considerations, clinical exposure, and financial incentives. Previous research also suggests that clinical exposure and mentorship influence the development of specialty preferences. For example, Lawson et al. found that positive clerkship experiences in primary care specialties (e.g., family medicine, internal medicine) were associated with an increased likelihood of pursuing a career in the field [10]. Similarly, Canadian research has recognized that pre-clerkship clinical experiences improve students' understanding of different specialties and support the career decision-making process [11]. This may be particularly important early in medical education when students have limited firsthand experience with the day-to-day responsibilities of different specialties. Clinical exposure can allow students to observe the work involved, interact with specialists, and better understand whether the field aligns with their interests and expectations. As such, these experiences may help students make decisions based on their interests and expectations rather than assumptions about different specialties. Beyond exposure alone, interactions with specialists can also provide opportunities for mentorship and role models, which may further shape specialty decisions [12,13].

Wellness and lifestyle appear important to physicians and medical students when considering career choices. Yen et al. highlighted "fulfillment" and work-life balance as top career priorities for medical students [14]. Anticipated specialty demands may therefore contribute to specialty preferences and students' perceptions of potential work-life balance.

Financial incentives and geographic preferences may further shape specialty selection. Rohlfing et al. found that higher student debt was often associated with a greater likelihood of choosing higher-earning specialties, potentially drawing students' preferences away from primary care [15]. Geographic preference may similarly influence physician distribution, as financial and lifestyle considerations may shape decisions about whether to practice in rural or urban areas [3]. Although some evidence regarding financial considerations comes from healthcare providers in the United States, these factors are especially relevant in the Canadian context, where geographic physician distribution is a nationwide issue. Exploring how students value financial aspects and other potential barriers may provide additional insight into specialty preferences and future workforce distribution.

Existing literature suggests that specialty decision-making is influenced by a range of personal, educational, and professional factors. However, less is known about how pre-clerkship medical students value these factors when developing specialty preferences, especially in Canada. This study builds on previous research by examining specialty preferences and the factors perceived to influence them among pre-clerkship medical students. By focusing on students early in their education, this research aims to improve understanding of the early processes underlying specialty preference development and inform potential opportunities to support career decision-making within medical education. Specifically, we examined students' current specialty preferences and their reported perceptions of personal interest, work-life balance, financial potential, prestige, impact on patient care, research opportunities, and clinical exposure among participating pre-clerkship medical students at Dalhsouie University.

Materials And Methods

Participants

The study population consisted of pre-clerkship medical students enrolled in the undergraduate medical education (UGME) program at Dalhousie University Faculty of Medicine. This included students from the Classes of 2027, 2028, and 2029 at both the Halifax, Nova Scotia, and Saint John, New Brunswick, campuses.

Eligible participants were medical students enrolled in the pre-clerkship phase of Dalhousie University's UGME program during the study period. Students not enrolled in the pre-clerkship phase during this period were ineligible to participate. Students in the Class of 2027 could no longer submit responses after beginning their first clerkship rotation in September 2025. All eligible students were invited to participate. The sample included 147 students in the Class of 2027, 149 in the Class of 2028, and 177 in the Class of 2029, for a cumulative total of 473 students. As this was a pilot study, no specific sample size was determined in advance, and no formal sample-size calculation was used.

Recruitment was conducted via the UGME listserv, and the Research in Medicine (RIM) and Student Affairs departments distributed survey invitations. The survey was administered via Microsoft Forms (Microsoft Corporation, Redmond, WA, USA), and access was restricted to participants logged in to their Dalhousie email accounts. The survey was configured to allow only one response per person.

Method

Data were collected through a cross-sectional survey consisting of 21 questions: 19 content-related questions and two consent statements. The survey included multiple-choice questions (MCQs), Likert-scale items, and open-ended responses (Appendix A). The survey included three optional open-ended questions that participants could answer independently. The primary researcher developed the questionnaire based on the study objectives and was informed by survey design guidance from the Harvard Program on Survey Research [16]. The study supervisor reviewed the survey before distribution and tested its functionality on Microsoft Forms (Microsoft Corporation, Redmond, WA, USA) to ensure it operated as intended. Formal content or psychometric validation was not performed.

Questions collected data on demographic characteristics (e.g., graduating class, gender, admission pathway), specialty preferences, and factors influencing specialty choice. Additional questions assessed prior clinical exposure to specialties, experiences working with specialists, the perceived influence of mentorship on specialty interests, the importance of work-life balance, concerns about future career burnout, and perceptions of specialty training length and lifestyle. Factors influencing specialty decision-making were assessed using Likert-scale questions, in which participants rated the importance of each factor as “extremely important,” “very important,” “moderately important,” “slightly important,” or “not important.” Financial considerations were assessed using two additional questions. The first asked participants to rate the extent to which financial considerations influenced their specialty choice on a 5-point scale ranging from 1 (“not at all”) to 5 (“extremely important”). The second asked how much student debt and earning potential played a role, using a 5-point scale ranging from "not at all" to "extremely."

Participants indicated their preferred specialties in a free-text response, which was manually categorized into six groups: undecided, primary care, multiple specialties including primary care, multiple specialties without primary care, surgical specialties, and medical subspecialty. Responses listing more than one specialty were categorized as multiple specialties, including primary care when at least one of the specialties was classified as primary care (e.g., Family Medicine, Pediatrics, and Emergency Medicine), and as multiple specialties without primary care when none of the listed specialties were primary care. For the purpose of this study, Emergency Medicine (EM) was included in the primary care category based on the availability of a Family Medicine-Emergency Medicine (FM-EM) residency training pathway offered at Dalhousie University. To assess the potential influence of this classification, a sensitivity analysis was conducted in which standalone EM was treated as a separate category. Preferences for the integrated FM-EM pathway remained categorized as multiple specialties, including primary care. Other combinations involving EM were classified according to whether they included another specialty categorized as primary care (i.e., Family Medicine and Pediatrics).

The survey was accessible to students from July 2025 to March 2026. Students in the Class of 2027 had access to the survey link until the start of their first clerkship rotation (September 2025), whereas students in the Classes of 2028 and 2029 had access until March 2026.

Ethical considerations

Ethical approval was obtained from Dalhousie University’s Undergraduate Medical Education Curriculum Committee (UMECC) on March 24, 2025, as the research involved the participation of medical students. Further approval was obtained from Dalhousie University’s Research Ethics Board (REB #2025-7786) on June 11, 2025.

Participation was voluntary. Survey access was restricted to students logged into their Dalhousie email accounts to verify eligibility and prevent duplicate responses. No personally identifiable information was collected. Before the survey questions, participants were required to read and complete an informed consent statement. This statement outlined the study’s purpose, participation requirements, confidentiality, and how the collected data would be used. Participants were reminded that they could withdraw at any time before submitting their responses. An additional consent statement was required before the open-ended questions to obtain permission to use responses as quotations in publications and presentations. Responses from participants who did not provide this additional consent were still included in the analysis but were not eligible for use as quotations.

Data analysis

Data were analyzed using descriptive statistics to summarize participant characteristics and survey responses. Categorical variables and Likert-scale responses were summarized with frequencies and percentages. Likert-scale responses assessing the importance of factors influencing specialty choice were summarized as the frequency and percentage of respondents selecting each response category. These

distributions were presented as 100% stacked bar charts to illustrate the relative proportions of respondents across categories for each factor. Specialty preferences and responses to multiple-choice questions were summarized descriptively.

Open-ended responses were examined descriptively by the primary researcher to identify recurring concerns and explanations related to specialty decision-making, with particular consideration of factors influencing decisions not to pursue family medicine. All submitted responses were reviewed, regardless of whether participants had consented to their use as anonymous quotations. The observations were discussed with the study supervisor. No formal qualitative coding framework or thematic analysis was performed, and a second researcher did not independently code the responses. Accordingly, no formal inter-rater assessment or disagreement resolution process was applicable.

As this was a pilot study, the analysis was primarily descriptive and not intended to establish generalizability beyond the study population. The association between the extent to which financial considerations influenced specialty choice and the perceived importance of student debt and earning potential was assessed using Spearman's rank correlation coefficient. Statistical significance was set at $p < 0.05$.

All statistical analyses and data visualizations were conducted using Microsoft Excel, version 16.112.4 (2026) (Microsoft Corporation, Redmond, WA, USA).

Results

Respondent characteristics

A total of 473 medical students were invited to participate, of whom 84 completed the survey (17.8% response rate). Response rates varied by graduating class: 17 of 147 students (11.6%) from the Class of 2027, 38 of 149 (25.5%) from the Class of 2028, and 29 of 177 (16.4%) from the Class of 2029. Among respondents, 60 (71.4%) identified as women, 23 (27.4%) as men, and 1 (1.2%) as non-binary. Twenty participants (23.8%) reported admission through a specific pathway, including the Indigenous, Rural, and Medical Military Training pathways (Table *1*).

Characteristic	n (%)
Class year	
Class of 2027	17 (20.2)
Class of 2028	38 (45.2)
Class of 2029	29 (34.5)
Gender	
Woman	60 (71.4)
Man	23 (27.4)
Non-binary	1 (1.2)
Admission pathway	
Yes	20 (23.8)
No	64 (76.2)

TABLE 1: Demographic characteristics of respondents (n = 84), including class year (2027, 2028, or 2029), gender identity (woman, man, or non-binary), and admission pathway status.

Values are presented as n (%) and are descriptive.

n = number of respondents.

Specialty preferences

At the time of the survey, 60.7% of respondents (n = 51) had not yet decided on a specialty, while 39.3% (n = 33) had. Regardless of whether they had made a final decision, all participants were asked to indicate their current preferred specialties. The most frequently selected specialty preference category was primary care (n = 20, 23.8%), with an additional 17 respondents (20.2%) expressing interest in multiple specialties, including

primary care. Five respondents (6.0%) preferred multiple specialties without primary care, 14 (16.7%) selected a surgical specialty, 7 (8.3%) preferred a medical subspecialty, and 21 (25.0%) reported no current specialty preference (Figure 1).

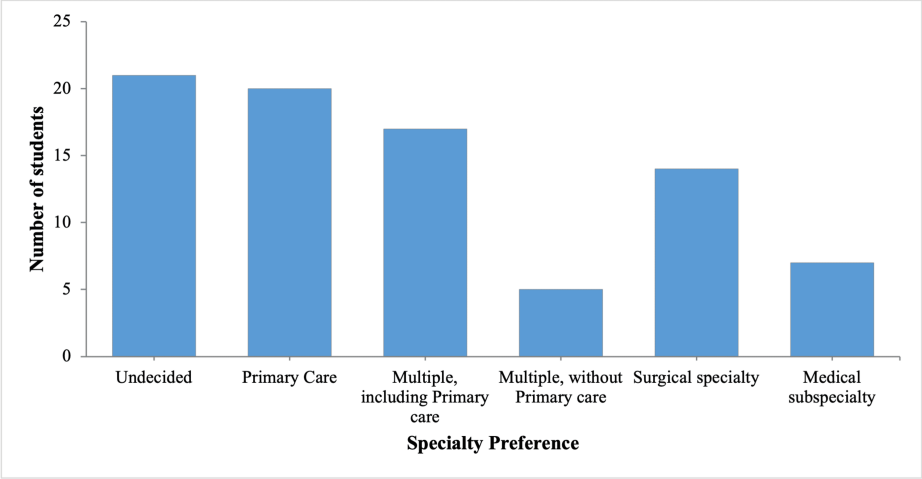


FIGURE 1: Bar chart showing the distribution of specialty preferences among respondents.

Choices were manually grouped into six categories: undecided, primary care, multiple specialties including primary care, multiple without primary care, surgical specialties, and medical subspecialty.

Created using Microsoft Excel, version 16.112.4 (2026) (Microsoft Corporation, Redmond, WA, USA).

Sensitivity analysis

To assess the potential influence of classifying EM within primary care, a sensitivity analysis was conducted using an alternative classification in which standalone EM preferences were treated as a separate category. Preferences for the integrated FM-EM pathway were classified as multiple specialties including primary care, while combinations of EM with other specialties were classified according to whether they included another primary care specialty (Appendix B). Under this alternative classification, 31 respondents (36.9%) preferred primary care or multiple specialties including primary care, compared with 37 respondents (44.0%) in the primary analysis.

Factors influencing specialty decision-making

Students ranked the importance of several factors in their specialty decision-making, including opportunities for research, impact on patient care, personal interest, financial potential, prestige of the specialty, and work-life balance, as shown in Figure 2. Personal interest was most frequently rated as “extremely important” (63.1%, n = 53) or “very important” (34.5%, n = 29), while one respondent (1.2%) rated it as “moderately important,” and one (1.2%) as “not important.” Work-life balance followed, with 81.0% of respondents rating it as “extremely important” (27.4%, n = 23) or “very important” (53.6%, n = 45). The remaining respondents rated it as “moderately important” (17.9%, n = 15) or “slightly important” (1.2%, n = 1).

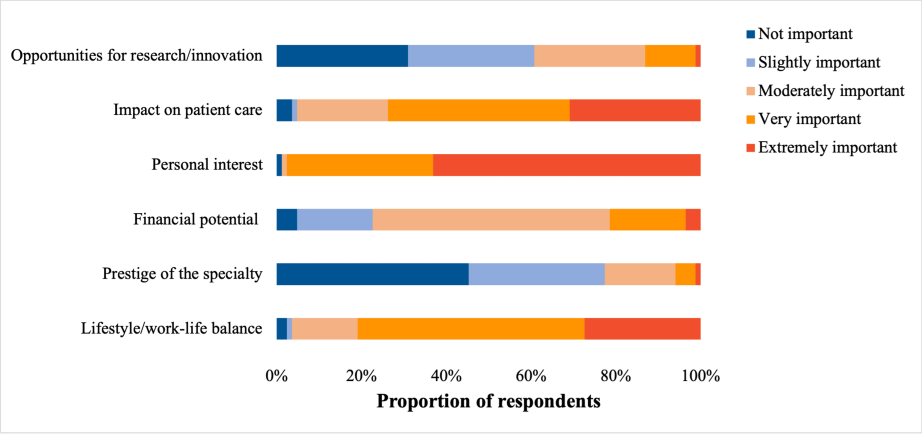


FIGURE 2: Stacked bar chart showing the proportion of respondents' Likert-scale ratings of the importance of factors influencing specialty decision-making among pre-clerkship medical students.

Factors included opportunities for research/innovation, impact on patient care, personal interest, financial potential, prestige of the specialty, and lifestyle/work-life balance.

Created using Microsoft Excel, version 16.112.4 (2026) (Microsoft Corporation, Redmond, WA, USA).

Impact on patient care was also ranked highly, with 62 respondents rating it as "extremely important" (31.0%, n = 26) or "very important" (42.9%, n = 36). Eighteen (21.4%) rated it as "moderately important," one (1.2%) as "slightly important," and three (3.6%) as "not important." In contrast, prestige of the specialty was generally considered less important, with 45.2% of respondents stating it was "not important" (n = 38) and 32.1% stating it was "slightly important" (n = 27). Only one (1.2%) respondent rated it as "extremely important," while four (4.8%) rated it as "very important." The remaining respondents rated it as "moderately important" (16.7%, n = 14).

For research opportunities, 60.7% of respondents selected "not important" (n = 26) or "slightly important" (n = 25). Other respondents rated research opportunities as "moderately important" (26.2%, n = 22), "very important" (11.9%, n = 10), or "extremely important" (1.2%, n = 1). Financial potential was rated as "extremely important" (3.6%, n = 3) or "very important" (17.9%, n = 15) by 21.4% of respondents, "moderately important" by 56.0% (n = 47), and "slightly important" by 17.9% (n = 15), while 4.8% rated it as "not important" (n = 4).

Clinical exposure and mentorship

Of the 84 respondents, 81 had worked with a specialist in a clinical setting, while three had not yet had any clinical exposure. Among the 81 respondents with clinical exposure, 74 (91.4%) reported positive experiences, while seven (8.6%) reported negative experiences.

Regarding mentorship, all 84 respondents rated its influence on their specialty interest. Forty-three participants (51.2%) rated their experience as "very important," while 20 (23.8%) rated it as "extremely important." Twelve (14.3%) rated it as "moderately important," six (7.1%) as "slightly important," and three (3.6%) as "not at all important."

When asked specifically about the importance of achieving work-life balance when choosing a specialty, 36 of the 84 respondents (42.9%) rated it as "extremely important," while 35 (41.7%) rated it as "very important." Nine (10.7%) rated it as "moderately important," three (3.6%) as "slightly important," and one (1.2%) as "not at all important."

Perceived specialty factors

Respondents were asked to select perceptions of a specialty that influenced their specialty decision-making, with multiple selections allowed. As shown in Figure *3*, controllability of lifestyle was selected by 90.5% of respondents (n = 76), followed by length of training (66.7%, n = 56), competitiveness (56.0%, n = 47), and opportunity to work in underserved areas (42.9%, n = 36).

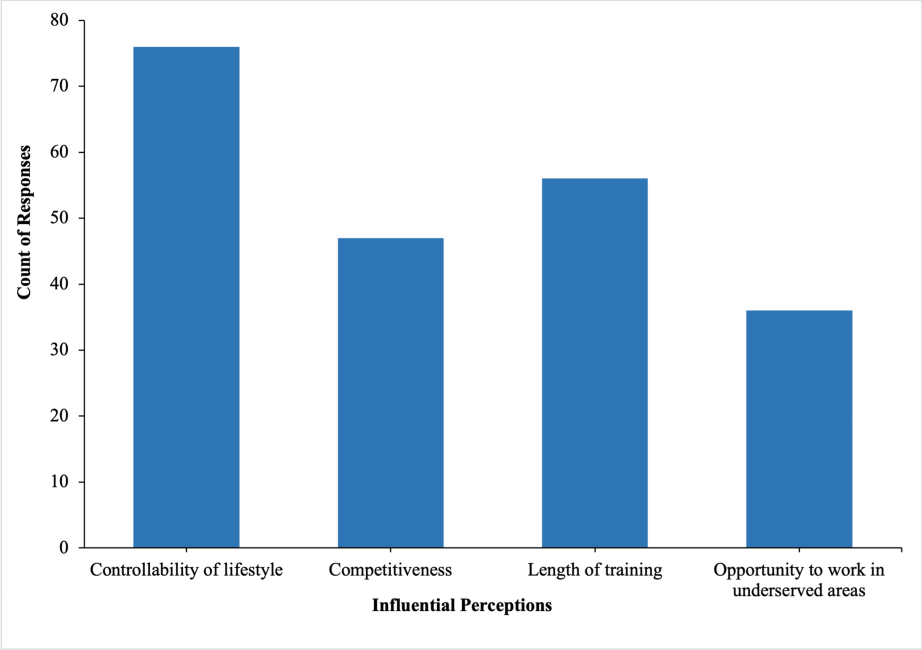


FIGURE 3: Bar chart showing the perceived factors influencing specialty decision-making among respondents.

Perceived influential factors include controllability of lifestyle, competitiveness, length of training, and opportunity to work in underserved areas.

Created using Microsoft Excel, version 16.112.4 (2026) (Microsoft Corporation, Redmond, WA, USA).

Burnout and financial considerations

Further analysis revealed that 75.0% of respondents (n = 63) were concerned about future career burnout. Regarding the extent to which financial considerations influenced specialty choice, five respondents (6.0%) rated this as "extremely important," 22 (26.2%) as "very important," 36 (42.9%) as "moderately important," and 21 (25.0%) as "slightly important." No respondents rated financial considerations as "not at all." For the separate question about the role of student debt and earning potential in specialty decision-making, two respondents (2.4%) selected "extremely," 19 (22.6%) selected "very," 32 (38.1%) selected "moderately," 21 (25.0%) selected "slightly," and 10 (11.9%) selected "not at all."

To assess the relationship between these financial considerations, the five-point ratings for the extent to which financial considerations influenced specialty choice and the role of student debt and earning potential were compared using Spearman's rank correlation. The correlation demonstrated a strong positive association ($\rho = 0.735$, $n = 84$, $p < 0.001$), indicating that respondents who rated financial considerations as more influential also tended to assign greater importance to student debt and earning potential.

Open-ended responses

Open-ended questions were optional, and participants could respond to any or all of the three questions. Of the 84 participants, 50 (59.5%) provided reasons for not considering family medicine. Participants repeatedly described concerns related to workload, compensation, administrative responsibilities, and work-life balance. Other responses included short appointment times, burnout, and limited procedural opportunities. One participant voiced concern about the "high patient turnover" associated with family medicine and its potential impact on meaningful patient interactions, as well as the "potential for burnout" given the workload family physicians face. Another participant identified "compensation" and "administrative burden" as factors influencing their decision. Participants also highlighted dissatisfaction with short appointment times, with one individual noting, "I really dislike the short appointments and feel better able to be thorough in other specialties."

Sixty-one participants (72.6%) discussed ways medical schools could better support informed specialty decisions, often citing the need for earlier and greater exposure to a wider range of specialties, structured mentorship opportunities, and direct interactions with physicians to understand the day-to-day responsibilities associated with different specialties. One participant emphasized the importance of early clinical exposure, requesting "opportunities for students to see all specialties before clerkship, even if it's only a short experience."

Finally, 42 participants (50.0%) shared additional thoughts and experiences that influenced their specialty choices, such as personal interests, residency length, geographic considerations, and previous personal and professional experiences. For example, one respondent described how their previous work as a respiratory therapist at the children's hospital contributed to a "bias towards pediatrics," adding that their "experience in airway management also makes anesthesia a potential interest."

Discussion

This pilot study explored early specialty decision-making among pre-clerkship medical students enrolled at Dalhousie University in Canada and identified possible areas for future intervention. While most participants had not yet made definitive specialty choices, a substantial proportion expressed interest in a wide range of specialties, including primary care. However, this proportion should be interpreted in light of the study's classification of EM. In the primary analysis, EM was included within primary care based on the availability of the integrated FM-EM pathway at Dalhousie University. In the sensitivity analysis, the percentage of respondents expressing interest in primary care or multiple specialties, including primary care, decreased from 44.0% to 36.9% following the alternative classification of EM preferences. This highlights how the classification of EM influenced the proportion of respondents categorized as having a primary-care-related specialty preference.

Overall, personal interest, lifestyle-related factors, and clinical exposure and mentorship emerged as important perceived influences on early specialty preferences. Personal interest was the most highly valued factor, while work-life balance and lifestyle controllability were also prominent. This aligns with prior studies that emphasize lifestyle sustainability as a central consideration in medical students' specialty decisions [14]. In particular, the strong emphasis on work-life balance, controllability of practice, anticipated burnout, and training length suggests that students consider the potential long-term personal and professional impacts of different specialties. Although financial considerations were not among the most highly rated individual factors, their significant association with the importance of student debt and earning potential suggests that financial priorities remain relevant to specialty decision-making [15].

The demographic composition of the sample is also important to consider when interpreting these findings. In this study, the majority of respondents were women, consistent with increasing representation of women in medical education [17]. Women remain underrepresented in certain specialties, particularly surgical fields, as well as in leadership positions [17]. Prior research has shown that work-life balance, representation, and access to mentors may influence women's expectations and perspectives on traditionally male-dominated specialties [18]. Although this study did not directly assess gender differences, these findings provide broader context for understanding the importance respondents placed on lifestyle-related factors and work-life balance.

Clinical exposure and mentorship also emerged as important influences on students' specialty preferences. In this study, the majority of respondents had worked with a specialist in a clinical setting, most of whom reported positive experiences. This finding is consistent with earlier work demonstrating that clinical exposure can introduce students to different fields and expose them to the day-to-day realities of practice [11]. Beyond exposure alone, interactions with physicians can provide role models and mentors, which multiple researchers have associated with favourable career outcomes [12,13]. Clinical interactions may help students form more informed expectations about different specialties and how they correspond with their individual priorities. Mentorship was also perceived as influential, with 75.0% rating it as very or extremely important in shaping specialty preferences. For medical programs, these findings support providing meaningful, varied clinical exposure early in education, alongside mentorship opportunities. Respondents also identified structured mentorship opportunities and direct interactions with physicians as ways medical schools could better support informed specialty choices. These outcomes highlight the potential value of clinical exposure and mentorship in supporting early specialty exploration. However, the cross-sectional design of this study does not allow us to determine whether these experiences directly influenced specialty preferences.

Burnout is another important consideration in specialty decision-making. Physician burnout has been closely linked to poor physical and mental health, with researchers identifying it as especially important in primary care settings [19]. In this study, respondents also identified concerns about potential future burnout. However, these responses reflect students' anticipated concerns rather than actual experiences of burnout. Both existing literature and respondents' comments identified system-level issues that may contribute to physician burnout and affect well-being.

These system-level factors include administrative burden, time constraints, limited resources, and the degree of support from provincial governments and the health care system. In Canada, most family medicine and primary care services are delivered outside traditional hospital settings, predominantly through community-based clinics that require physicians to manage additional administrative and operational responsibilities [20]. Policy changes in provinces such as Ontario and Alberta have also reduced funding for interprofessional teams and alternative primary care models, reflecting system-level factors that may influence decisions to pursue the field [9]. Recently, Grady et al. interviewed retired family physicians in Ontario to explore the rising rate of early retirement in the field [21]. Participants consistently emphasized

that feeling valued and having provincial support were key contributors to long-term retention. Despite ongoing efforts to recruit residents, system-level issues continue to affect retention, an issue Myran et al. dubbed "the second crisis" [9].

Training length represents another important influence when students consider different specialties. Training duration varies across specialties and is often followed by additional fellowship years. When combined with undergraduate and medical education, this extended period can delay financial stability and personal milestones. Longer training pathways, particularly in surgical specialties, may also present challenges for work-life balance and contribute to concerns about fatigue and burnout [22]. However, the relationship between training duration and these outcomes was not directly examined in this study. Our findings suggest that students consider training length alongside work-life balance and financial factors when evaluating long-term outcomes of different specialties. Conversely, a shorter training period does not necessarily make family medicine more appealing if students expect high workloads and other practice-related pressures. Specialty decisions may therefore reflect long-term professional and personal expectations.

Although the quantitative findings examined interest in primary care, the open-ended responses explored perceptions of family medicine specifically. Common concerns included expectations of being overworked, undercompensated, and burdened by significant administrative challenges. Several participants expressed dissatisfaction with "short appointment times" and "high patient turnover," noting that they perceived these issues as limiting meaningful patient-physician relationships. Primary care provider turnover has been associated with worse patient experiences of care and reduced access to timely care [23]. Similarly, Park et al. reported that high patient turnover increases demands on healthcare resources and negatively affects patient outcomes [24]. Given that longitudinal care and patient relationships are central to family medicine, these perceived constraints may weaken the aspects that initially attract students to the field [24]. These barriers are further contextualized by broader concerns about workload, administrative burden, physician burnout, and the financial realities of primary care [9,21]. Addressing the primary care physician shortage therefore involves more than increasing student interest and recruitment. Expanding medical training also requires sufficient faculty, clinical opportunities, healthcare infrastructure, staffing, and funding [25]. These limitations affect different stages of the physician workforce and need to be addressed through both medical programs and the Canadian healthcare system.

Limitations

This study had several limitations. First, as a pilot study, it achieved a relatively low response rate of 17.8%. While this may limit the representativeness and generalizability of the findings, this study was intended to be exploratory. The low response rate also introduces the possibility of nonresponse bias, as students who chose to participate may differ from nonrespondents in their specialty interests or decision-making processes. Additionally, campus affiliation was not collected; therefore, campus-specific response rates and differences in participation between the Halifax, Nova Scotia, and Saint John, New Brunswick campuses could not be assessed.

Second, the study population included students from diverse geographic and educational backgrounds. Some students were admitted to Dalhousie University Faculty of Medicine through pathways such as the Military Medical Training Program and the Indigenous Admissions Pathway. These pathways involve return-of-service commitments, including practicing family medicine and/or in specific geographical locations. However, we did not examine whether these backgrounds or admission pathways influenced students' specialty preferences or career decisions. Future research could explore whether these factors are associated with specialty decisions among Canadian medical students.

Additionally, the survey was developed for this study and underwent supervisor review and functionality testing but did not undergo formal content or psychometric validation. Therefore, the extent to which the survey comprehensively captured the factors influencing specialty preferences is uncertain.

Furthermore, our findings identified broader system-level issues, such as workload, undercompensation, and administrative burden, as potential influences on specialty decision-making. These factors were not directly assessed through specific survey questions or quantitative measures but emerged from participants' responses to open-ended questions. These responses were reviewed descriptively rather than through a formal qualitative coding or thematic analysis process. As a result, the study could identify these issues as perceived barriers but not the extent to which they influence preferences and decisions. Future research should directly investigate these system-level factors and their relationship with specialty preferences and career decisions at various stages of medical education, particularly in primary care in Canada.

Lastly, the cross-sectional design gathered self-reported specialty preferences at a single point in time. Therefore, the study could not determine whether these preferences persist throughout medical training or influence medical students' final residency choices.

Conclusions

In conclusion, this pilot study explored perceived influences on specialty preferences among pre-clerkship medical students at Dalhousie University, Canada. Personal interest, lifestyle-related factors, and clinical exposure were prominent considerations in early specialty preferences. Financial considerations, anticipated burnout, and training length also contributed to how respondents evaluated potential career paths. Many students expressed interest in primary care, although open-ended responses highlighted concerns about workload, compensation, and administrative burden specifically within family medicine. These observations point to potential areas for intervention, particularly improving early clinical exposure and addressing systemic challenges that may affect physician well-being and the sustainability of careers in primary care. Future longitudinal research across multiple Canadian medical schools is needed to determine whether these early preferences persist throughout medical training and influence eventual residency choices.

Appendices

Appendix A

Specialty Decision-Making Survey

Informed Consent - Please read thoroughly before moving on.

1. Do you consent?

Yes, I consent

No, I do not consent

2. What year of medical school are you currently in?

Class of 2029

Class of 2028

Class of 2027

3. What is your gender?

Man

Woman

Non-binary

4. Have you been admitted through a particular pathway?

Yes

No

5. Before medical school, did you have a preference for practicing in rural, suburban, or urban settings?

Rural

Suburban

Urban

No preference

6. Currently, do you have a preference to practice in a rural, suburban, or urban area?

Rural

Suburban

Urban

No preference

7. Have you already decided on a preferred specialty for residency?

Yes

No

8. Please rate how important the following factors are in your specialty decision-making process:

(Not important, Slightly important, Moderately important, Very important, Extremely important)

Lifestyle/work-life balance

Prestige of the specialty

Financial potential

Personal interest

Impact on patient care

Opportunities for research/innovation

9. Have you had the opportunity to shadow or work with specialists?

Yes

No

10. How influential has mentorship been in shaping your specialty interest? (Scale: 1 = Not at all and 5 = Extremely important)

(___)

11. Have clinical experiences influenced your specialty choice?

Yes, positive experiences

Yes, negative experiences

No

12. How important is achieving work-life balance when choosing your specialty? (Scale: 1 = Not at all and 5 = Extremely important)

(___)

13. Are you concerned about burnout in your future specialty?

Yes

No

14. To what extent do financial considerations influence your choice of specialty? (Scale: 1 = Not at all and 5 = Extremely important)

(___)

15. How much do student debt and earning potential play a role?

Not at all

Slightly

Moderately

Very

Extremely

16. Which perceptions impact your decision? (Select all that apply)

Controllability of lifestyle

Competitiveness of the specialty

Opportunity to work in underserved areas

Length of training

17. Have you considered family medicine or primary care?

Yes

No

18. For the following open-ended questions (Q19, 20, and 21), do you consent to allow any of your responses to be quoted in research publications or presentations?

Yes, I give permission to have my open-ended responses quoted anonymously.

No, I do not give permission to have my open-ended responses quoted.

19. If you are not considering family medicine, what factors influenced your decision?

(___)

20. What do you believe medical schools could do to better support students in making informed specialty choices?

(___)

21. Do you have any additional thoughts or experiences that have influenced your specialty choice?

(___)

Appendix B

Sensitivity Analysis of Specialty Preference Classification

Specialty choice	Number of students (n)	Percentage (%)
Undecided	21	25.0
Primary care	17	20.2
Multiple, including primary care	14	16.7
Multiple, without primary care	10	11.9
Surgical specialty	14	16.7
Medical subspecialty	7	8.3
Emergency medicine	1	1.2
Total	84	100

TABLE 2: Distribution of specialty preferences following the reclassification of Emergency Medicine (EM) as a separate category.

Note: To assess the potential influence of the original classification, a sensitivity analysis was conducted in which standalone Emergency Medicine (EM) was treated as a separate category. Preferences for the integrated Family Medicine-Emergency Medicine (FM-EM) pathway were categorized as multiple specialties, including primary care, while combinations of EM with other specialties were classified by whether they included another specialty categorized as primary care (i.e., Family Medicine and Pediatrics).

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Jana AlFaras, Ketan Kulkarni

Acquisition, analysis, or interpretation of data: Jana AlFaras

Drafting of the manuscript: Jana AlFaras

Critical review of the manuscript for important intellectual content: Jana AlFaras, Ketan Kulkarni

Supervision: Ketan Kulkarni

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Health Sciences Research Ethics Board, Dalhousie University issued approval 2025-7786, dated June 11, 2025. Ethical approval was obtained from Dalhousie University's Undergraduate Medical Education Curriculum Committee (UMECC) on March 24, 2025, as the research involved the participation of medical students. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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