

Factors Influencing Participation in the Formal Mentoring Program among Family Medicine Residents in Qatar: A Mixed-Methods Study

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Abstract

Background: The transition into residency is a demanding period. While mentorship programs aim to improve well-being, confidence, and career guidance, active engagement among family medicine residents often varies. This study aimed to systematically identify barriers and facilitators affecting participation in a formal mentoring program among family medicine residents in Qatar.

Methods: A descriptive cross-sectional mixed-methods survey was conducted among 48 Family Medicine residents (PGY1-PGY4) at the West Bay Training Facility in Qatar. The survey captured quantitative data on mentoring frequency, satisfaction, engagement, and perceived effectiveness, alongside qualitative open-ended responses regarding barriers and facilitators. Quantitative data were analyzed using Kruskal-Wallis and Chi-square tests, while qualitative data underwent thematic analysis.

Results: The study included 48 residents (12 per PGY level), of whom 77.1% were female and 70.8% were non-Qatari nationals. The response rate was 92.3%. Perceived mentorship effectiveness significantly declined as residents advanced in their training ($H = 20.96$, $p < 0.001$), with PGY1 residents reporting the highest effectiveness (median = 10.0) and PGY4

residents the lowest (median = 5.0). Despite this decline, overall mentorship satisfaction ($p = 0.149$) and self-reported engagement ($p = 0.881$) remained consistently high across all cohorts. Thematic analysis identified "Time Constraints" as the primary barrier (28 mentions), whereas "Emotional/ Interpersonal Support" (17 mentions) and "Structured Scheduling" (12 mentions) were the main facilitators of engagement.

Conclusion: Formal mentorship is highly valued, but its perceived effectiveness diminishes in senior residency years. Addressing severe time constraints through protected meeting times and tailoring mentorship focus to align with the evolving career planning needs of senior residents are critical steps to optimizing mentorship engagement.

Key words: participation. mentoring, family medicine residents, Qatar

Introduction

The transition from undergraduate medical education to postgraduate residency training is a demanding period characterized by increased clinical responsibilities, high stress, and significant professional identity formation [1]. To mitigate burnout and support residents through this transition, many medical training institutions have implemented formal mentorship programs. Effective mentorship has been consistently linked to improved resident well-being, enhanced clinical confidence, accelerated professional development, and better career guidance [3] [4].

Mentorship in medical education generally falls into two categories: informal mentorship, which develops organically through shared interests, and formal mentorship, which involves institutionally assigned relationships with structured goals [10]. The Family Medicine Residency Training Program in Qatar, which comprises 52 residents who are predominantly female and represent diverse nationalities, has established a formal mentoring program consisting of monthly one-hour meetings to ensure all residents have access to faculty guidance. However, program leadership has observed that despite the availability of assigned mentors and positive publicity, active participation and engagement among residents remain inconsistent.

Understanding the factors that drive or hinder engagement is critical for program optimization. Previous literature highlights that time constraints, mismatched mentor-mentee expectations, and lack of structured meeting times often impede formal mentorship success [9]. Furthermore, previous research in Qatar has indicated confusion among residents regarding the distinction between supervisory and mentorship roles. Yet, specific barriers to participation for family medicine residents in Qatar have not been systematically explored.

Therefore, this study aimed to systematically identify the barriers to engagement and highlight the factors that promote effective participation in the formal mentorship program among family medicine residents (PGY1-PGY4) in Qatar. The findings are intended to provide data-driven recommendations to enhance the mentorship experience and improve the overall educational environment.

Methods

1 Study Design and Setting

A descriptive, cross-sectional, mixed-methods study was conducted at the Family Medicine Residency Training Program, West Bay Training Facility, Qatar. The study utilized a self-administered, face-to-face survey comprising both quantitative rating scales and qualitative open-ended questions to capture a comprehensive view of the mentorship experience.

2 Participants and Recruitment

The target population consisted of all Family Medicine residents from Postgraduate Year 1 (PGY1) through Postgraduate Year 4 (PGY4) enrolled during the academic year. Census sampling was employed, inviting all eligible residents to participate. To eliminate the risk of coercion, recruitment and consenting were conducted exclusively by independent co-investigators who held no supervisory or evaluative roles over the residents. The Principal Investigator (PI) was not present during data collection. Five residents who participated in the pilot testing of the instrument were excluded from the final analysis. A total of 48 residents (12 from each PGY level) provided written informed consent and completed the survey.

3 Data Collection Instrument

The survey instrument was developed by the research team based on established mentorship evaluation frameworks [7]. It demonstrated face, content, and construct validity, and was pilot-tested prior to full deployment. The survey included:

- 1. Demographics:** Gender, nationality, and residency year.
- 2. Quantitative Metrics:** Frequency of formal and informal mentoring, mentorship satisfaction, self-reported engagement, perceived mentorship effectiveness (rated on a 1-10 scale), and perceived impact on clinical decision-making, leadership, and career planning (measured on Likert scales).
- 3. Qualitative Prompts:** Open-ended questions exploring barriers to participation, facilitators of engagement, most beneficial aspects of mentorship, and recommendations for program improvement.

4 Ethical Considerations

The study protocol was approved by the Primary Health Care Corporation (PHCC) Institutional Review Board (IRB Reference No: BUHOOTH-D-25-00110). Participation was strictly voluntary, and all collected data were anonymized and stored securely on password-protected, encrypted systems.

5 Data Analysis

Quantitative data were analyzed using SPSS. Descriptive statistics (means, medians, standard deviations, and frequencies) were calculated for all variables. Given the ordinal nature of the Likert scales and the non-normal distribution of the effectiveness scores, non-parametric Kruskal-Wallis H tests were utilized to compare continuous and ordinal variables across the four PGY levels. For statistically significant findings, Bonferroni-corrected Mann-Whitney U tests ($\alpha = 0.05/6 = 0.0083$) were performed for post-hoc pairwise comparisons. Categorical variables were analyzed using Chi-square tests of independence.

Qualitative data from open-ended responses were analyzed using thematic analysis following the framework described by Braun and Clarke [21]. Responses were reviewed, coded, and categorized into recurring themes, with frequencies calculated to determine the most prevalent barriers and facilitators [20] [22].

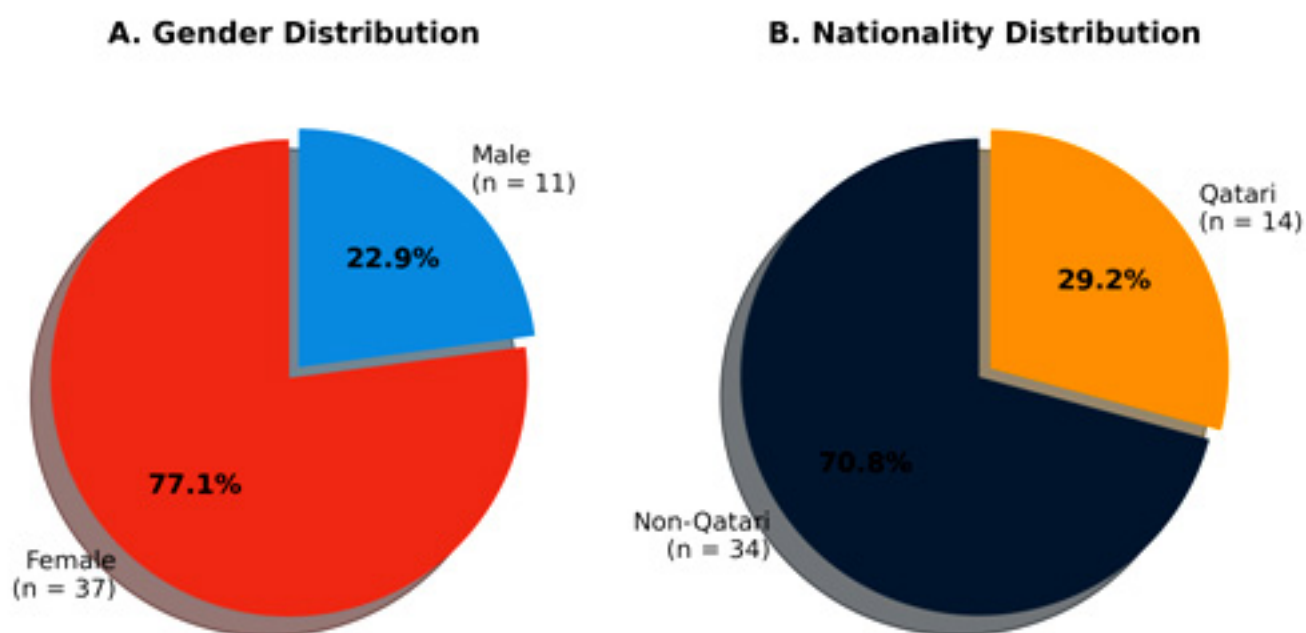
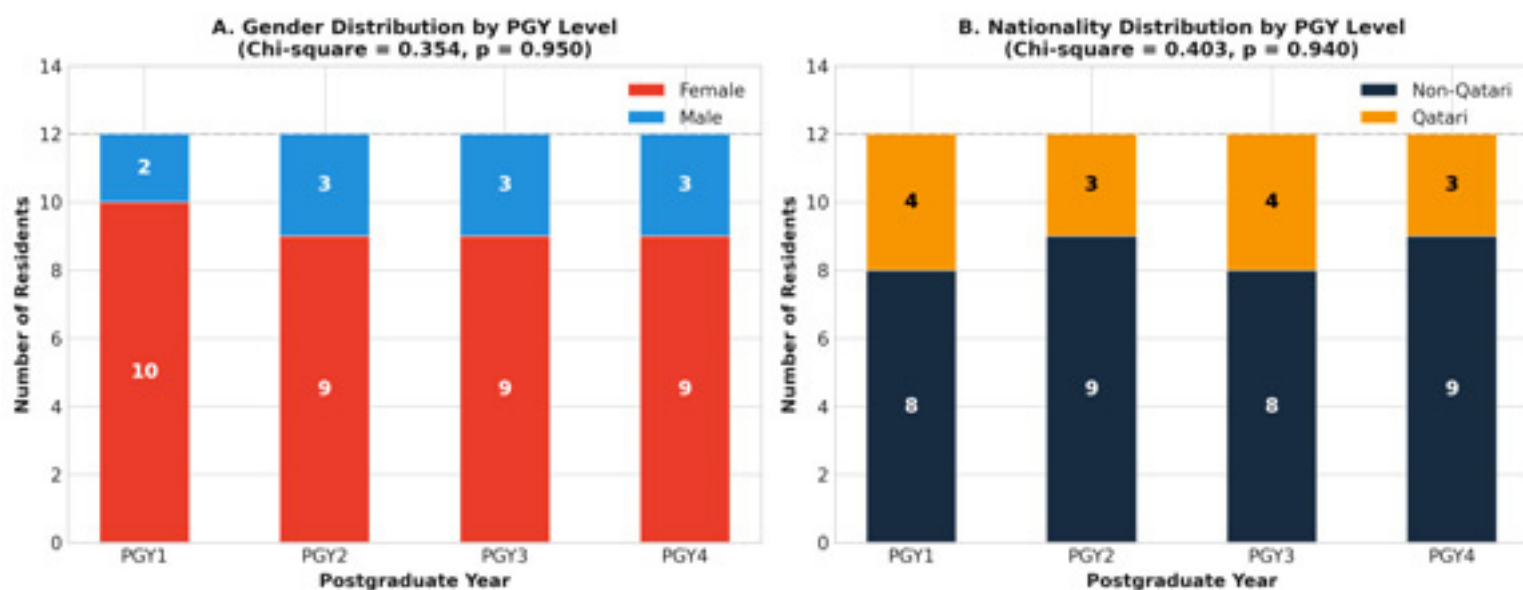
Results

1 Participant Demographics

A total of 48 family medicine residents participated in the study, equally distributed across the four postgraduate training years with 12 residents in each cohort. The majority of participants were female ($n = 37$, 77.1%), while male residents constituted 22.9% ($n = 11$) of the sample. Regarding nationality, non-Qatari residents represented the majority of the cohort ($n = 34$, 70.8%), whereas Qatari nationals comprised 29.2% ($n = 14$). Chi-square analysis demonstrated no statistically significant differences in gender distribution (Chi-square = 0.354, $df = 3$, $p = 0.950$) or nationality composition (Chi-square = 0.403, $df = 3$, $p = 0.940$) across the four PGY levels, confirming demographic homogeneity among the groups. The mean duration in the mentorship program increased progressively from 9.1 months in PGY1 to 45.4 months in PGY4. The complete demographic profile is presented in Table 1 and visually summarized in Figure 1.

Table 1. Demographic Characteristics of Participants by Postgraduate Year

Characteristic	PGY1 (n = 12)	PGY2 (n = 12)	PGY3 (n = 12)	PGY4 (n = 12)	Total (N = 48)	p-value
Gender						0.950
Female	10 (83.3%)	9 (75.0%)	9 (75.0%)	9 (75.0%)	37 (77.1%)	
Male	2 (16.7%)	3 (25.0%)	3 (25.0%)	3 (25.0%)	11 (22.9%)	
Nationality						0.940
Non-Qatari	8 (66.7%)	9 (75.0%)	8 (66.7%)	9 (75.0%)	34 (70.8%)	
Qatari	4 (33.3%)	3 (25.0%)	4 (33.3%)	3 (25.0%)	14 (29.2%)	

Figure 1. Demographic Characteristics of Study Participants (N = 48)**Figure 2. Distribution of Gender and Nationality Across PGY Levels**

2 Mentorship Engagement and Satisfaction

The frequency of formal mentoring interactions did not differ significantly across the four PGY levels (Kruskal-Wallis $H = 3.72$, $df = 3$, $p = 0.293$). Similarly, informal mentoring frequency remained comparable among all training cohorts (Kruskal-Wallis $H = 3.09$, $df = 3$, $p = 0.377$). These findings indicate that residents at all stages of training had equitable access to both formal and informal mentoring opportunities.

Overall mentorship satisfaction was consistently high across the entire cohort. No statistically significant decline in satisfaction was observed as residents progressed through training (Kruskal-Wallis $H = 5.34$, $df = 3$, $p = 0.149$). First-year residents reported a median satisfaction score of 5.0, while residents in PGY2 through PGY4 reported medians ranging from 4.0 to 4.5. Self-reported engagement levels were similarly stable, with no significant variation across training years (Kruskal-Wallis $H = 0.67$, $df = 3$, $p = 0.881$). All four cohorts reported a median engagement score of 4.0 out of 5.0. These comparative dimensions are illustrated in Figure 4.

3 Perceived Mentorship Effectiveness

In marked contrast to the stable satisfaction and engagement scores, the perceived overall effectiveness of the mentorship program demonstrated a highly significant decline across training levels (Kruskal-Wallis $H = 20.96$, $df = 3$, $p < 0.001$). As presented in Table 2 and Figure 3, PGY1 residents reported the highest perceived effectiveness with a mean score of 9.08 (SD = 1.11) and a median of 10.0 on the 10-point scale. This score progressively declined through PGY2 (mean = 7.42, SD = 1.32, median = 7.5) and PGY3 (mean = 7.92, SD = 1.32, median = 8.5), reaching its lowest point among PGY4 residents (mean = 5.67, SD = 1.49, median = 5.0).

Table 2. Perceived Mentorship Effectiveness Scores by Postgraduate Year

Residency Level	n	Mean (SD)	Median	IQR
PGY1	12	9.08 (1.11)	10.0	8.0 to 10.0
PGY2	12	7.42 (1.32)	7.5	6.0 to 9.0
PGY3	12	7.92 (1.32)	8.5	7.0 to 9.0
PGY4	12	5.67 (1.49)	5.0	4.8 to 6.5

Post-hoc pairwise comparisons using Bonferroni-corrected Mann-Whitney U tests (adjusted significance threshold: $p < 0.0083$) identified the following statistically significant differences: PGY1 versus PGY4 ($U = 135.0$, adjusted $p = 0.001$).

Additional comparisons approaching significance included PGY1 versus PGY2 ($U = 117.5$, adjusted $p = 0.045$), PGY2 versus PGY4 ($U = 118.0$, adjusted $p = 0.043$), and PGY3 versus PGY4 ($U = 124.0$, adjusted $p = 0.015$).

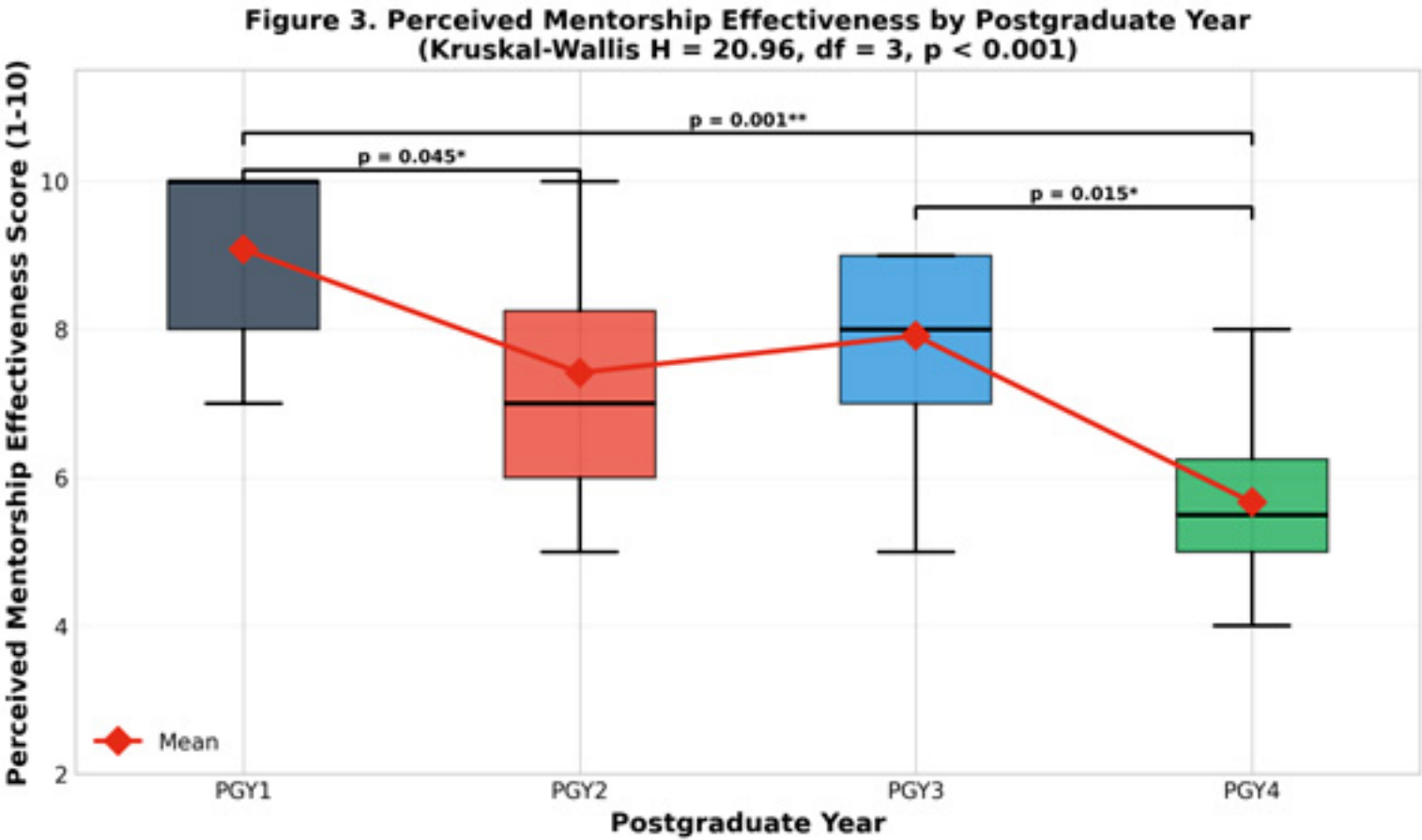
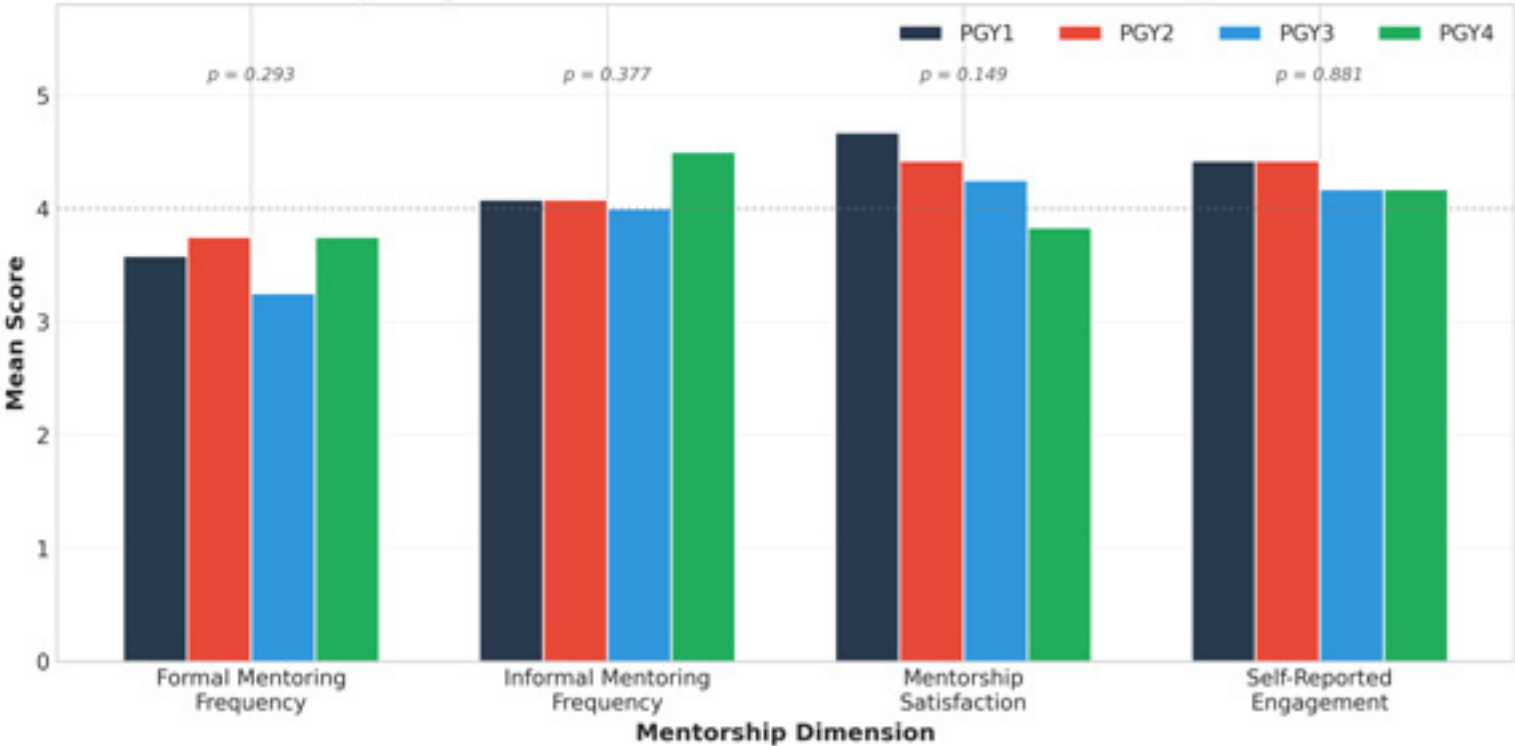


Figure 4. Mentorship Engagement and Satisfaction Scores by Postgraduate Year
(No significant differences observed across all dimensions)



Notwithstanding the decline in overall effectiveness ratings, residents across all training years consistently endorsed the positive impact of mentorship on their clinical decision-making, leadership skill development, and career planning. The majority of participants agreed or strongly agreed that mentorship contributed meaningfully to these professional competencies, with no significant differences observed across PGY levels for clinical decision-making (Kruskal-Wallis $H = 7.14$, $df = 3$, $p = 0.068$), leadership development (Kruskal-Wallis $H = 0.94$, $df = 3$, $p = 0.817$), or career planning (Kruskal-Wallis $H = 1.07$, $df = 3$, $p = 0.784$). The distribution of these perceived impacts is detailed in Figure 6.

4 Qualitative Findings: Barriers and Facilitators

Thematic analysis of the open-ended survey responses yielded rich contextual data that complemented and explained the quantitative findings.

Regarding barriers to active participation, “Time Constraints” emerged as the most frequently cited obstacle, mentioned by the overwhelming majority of respondents (28 mentions). Residents described competing clinical responsibilities, on-call schedules, and heavy patient loads as primary impediments to consistent mentorship engagement. “Workload” was additionally cited as a distinct but related barrier (8 mentions), reflecting the cumulative burden of clinical and academic demands.

With respect to facilitators of engagement, “Emotional and Interpersonal Support” was identified as the most influential factor promoting active participation (17 mentions). Residents emphasized that feeling genuinely supported and understood by their mentors motivated continued engagement. “Structured Scheduling” (12 mentions) and “Mentor Approachability” (10 mentions) were also identified as critical enablers, suggesting that both systemic and relational factors contribute to sustained participation.

When asked to provide recommendations for program improvement, the most frequently endorsed suggestion was the implementation of “Regular and Protected Meeting Times” (17 mentions), directly mirroring the primary barrier of time constraints. Participants also placed high value on receiving “Feedback and Review” during mentorship sessions (15 mentions), indicating that structured, goal-oriented interactions are perceived as more valuable than informal check-ins alone. A complete summary of these qualitative themes is presented in Figure 5.

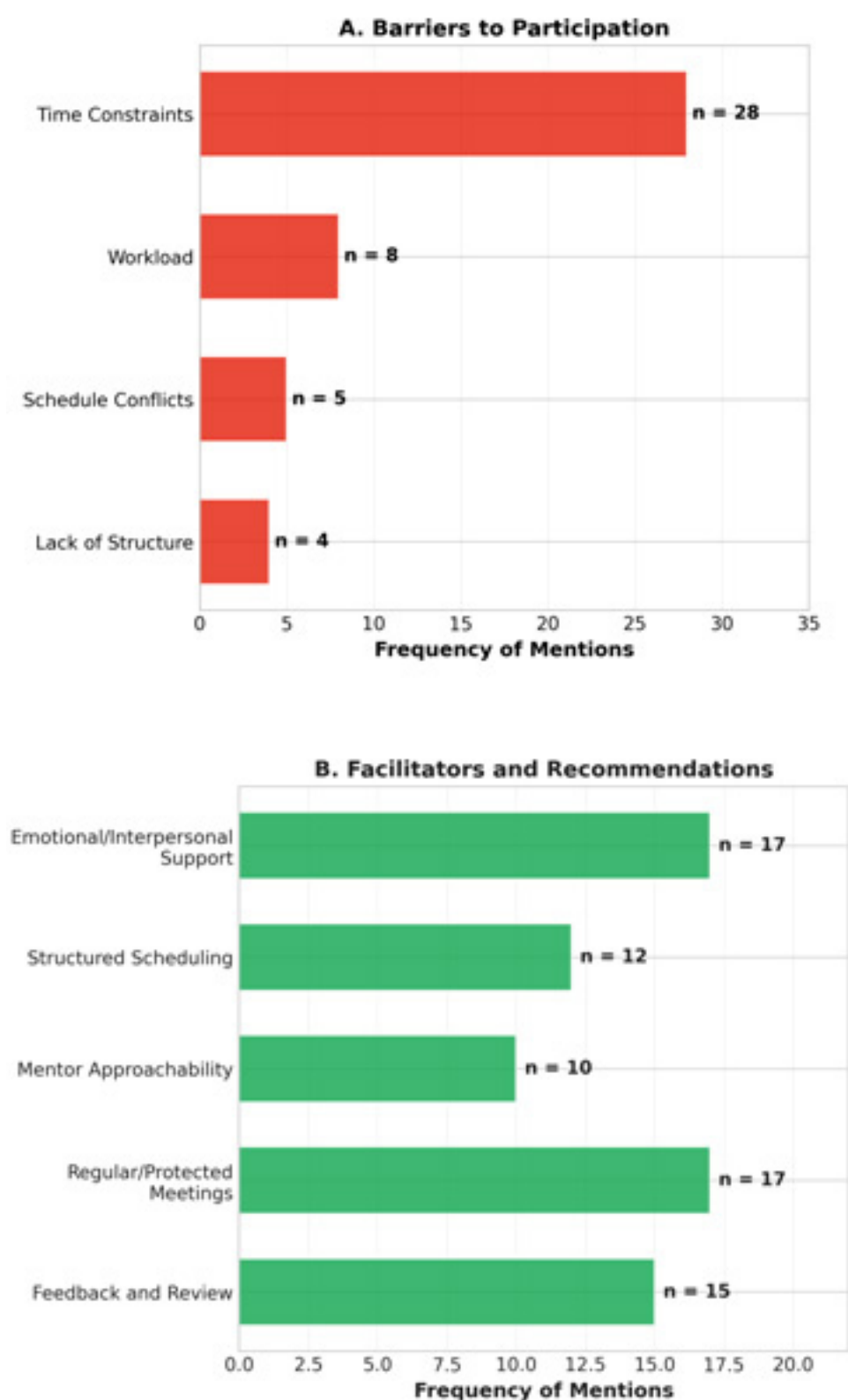
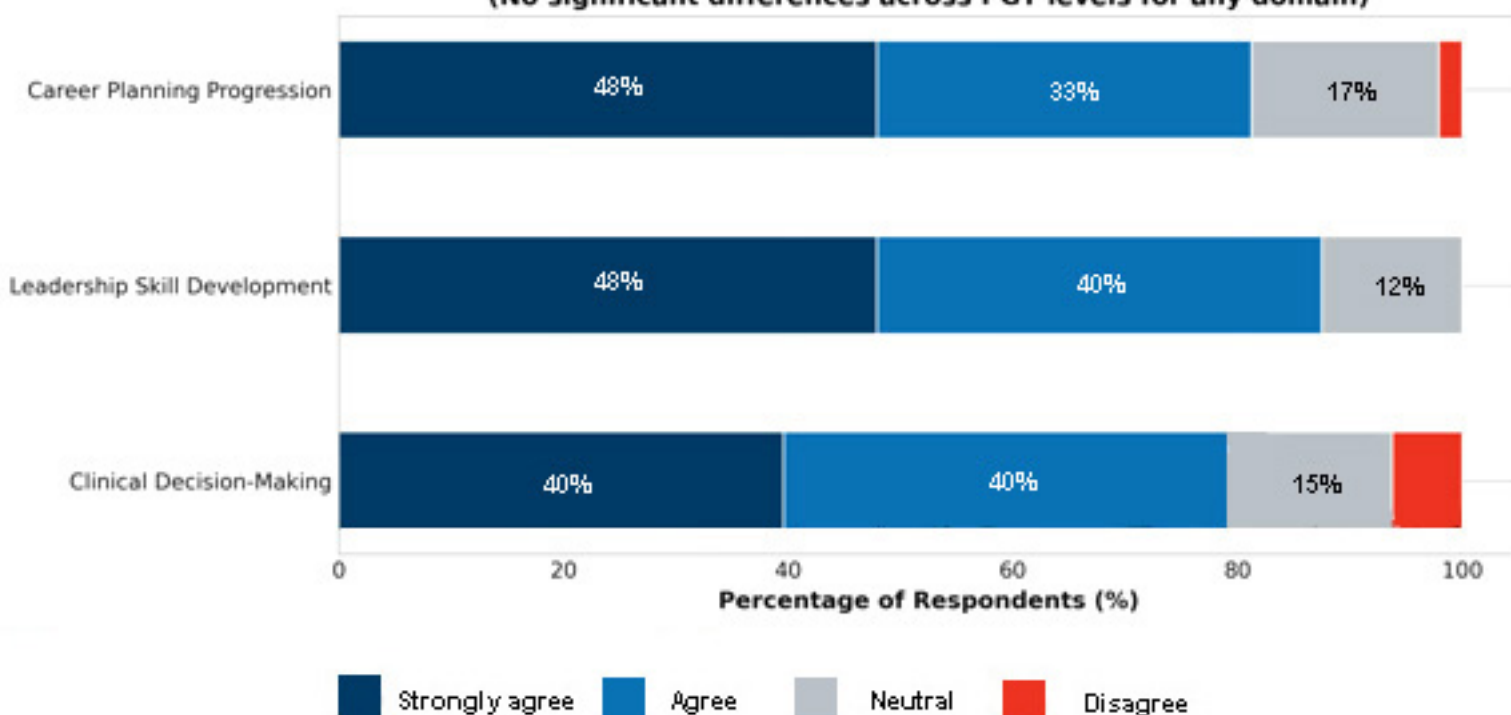
Figure 5. Thematic Analysis: Barriers and Facilitators of Mentorship Engagement

Figure 6. Perceived Impact of Mentorship on Professional Competencies (N = 48)
 (No significant differences across PGY levels for any domain)



Discussion

This mixed-methods study highlights a critical paradox in formal residency mentorship: while satisfaction, meeting frequency, and self-reported engagement remain high throughout the four years of family medicine training, the perceived effectiveness of the mentorship program declines significantly as residents progress to their senior years.

The high effectiveness scores in PGY1 (Median = 10.0) align with existing literature suggesting that junior residents rely heavily on mentors for emotional support and basic professional orientation during the stressful transition into residency [6]. However, the significant drop in effectiveness by PGY4 (Median = 5.0) suggests that the current formal mentoring structure may not be adapting to the evolving needs of senior residents. As residents gain clinical autonomy, their needs likely shift from basic emotional support to highly specific career sponsorship, advanced fellowship planning, and transition-to-practice guidance [5]. If formal mentors are not equipped or trained to provide this advanced sponsorship, senior mentees may perceive the relationship as less effective, even if they remain satisfied with the mentor personally.

Qualitatively, the study overwhelmingly identified "Time Constraints" as the primary barrier to engagement. The demanding clinical workload of family medicine residency often leaves little room for extracurricular meetings. This is directly supported by the residents' primary recommendations: implementing structured scheduling and protected time for mentorship meetings. Relying on residents and mentors to find time organically within a packed clinical schedule is a systemic vulnerability that limits the depth of the mentoring relationship.

Furthermore, the emphasis on "Emotional/Interpersonal Support" as a key facilitator underscores the psychological value of mentorship. Given the diverse nature of the residency cohort - with 70.8% being non-Qatari nationals adapting to both a demanding training program and a new cultural context - this emotional support is particularly vital. The fact that residents highly value mentor approachability suggests that successful formal programs must carefully consider cultural competency, personality fit, and interpersonal dynamics during the mentor-mentee matching process, rather than relying solely on random assignment [17] [19]. Power dynamics inherent in mentor-mentee relationships must also be acknowledged and managed to foster open.

Strengths and Limitations

A major strength of this study is its mixed-methods design, which allowed the qualitative themes to contextualize the quantitative findings. The census sampling of the eligible cohort (12 residents per PGY level) minimizes non-response bias and allows for robust comparisons across training years. Furthermore, the strict separation of the Principal Investigator from the recruitment and data collection processes successfully mitigated the risk of coercion in this vulnerable educational population.

However, the study has limitations. It was conducted at a single training facility in Qatar, which may limit the generalizability of the findings to programs with different structures or cultural contexts. The predominantly non-Qatari composition of the cohort (70.8%) reflects the international nature of medical training in the Gulf region and may influence the generalizability of findings to more homogeneous training settings. Additionally, the sample size of 48, while representing the complete eligible cohort for this specific program, is relatively small, which may limit the statistical power to detect smaller effect sizes. The cross-sectional design precludes causal inferences regarding the observed decline in perceived effectiveness across training years.

Conclusion and Recommendations

Formal mentorship in family medicine residency is highly valued and successful in providing emotional support and early professional guidance. However, to maintain its effectiveness throughout the entirety of the training program, mentorship models must evolve alongside the resident.

Based on these findings, we recommend the following institutional interventions:

- 1. Implement Protected Time:** Programs must provide formally scheduled, protected time for mentor-mentee meetings to overcome the primary barrier of time constraints and clinical workload.
- 2. Phase-Specific Mentor Training:** Faculty development should include training on how to transition from providing emotional support to junior residents to offering targeted career sponsorship and transition-to-practice guidance for senior residents.
- 3. Re-evaluate Senior Mentorship:** Programs should consider allowing senior residents (PGY3/PGY4) to select mentors based on specific career interests rather than maintaining a single assigned mentor for all four years.
- 4. Culturally Sensitive Mentorship:** Given the predominantly international composition of the residency cohort, mentorship programs should incorporate cultural competency training for mentors and consider the unique adjustment challenges faced by non-Qatari residents navigating both professional development and cross-cultural adaptation.

Acknowledgement

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