

# Mentorship perceptions and experiences among academic family medicine faculty

*Findings from a quantitative, comprehensive work-life and leadership survey*

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## Abstract

**Objective** To collect information about the types, frequency, importance, and quality of mentorship received among academic family medicine faculty, and to identify variables associated with receiving high-quality mentorship.

**Design** Web-based survey of all faculty members of an academic department of family medicine.

**Setting** The Department of Family and Community Medicine of the University of Toronto in Ontario.

**Participants** All 1029 faculty members were invited to complete the survey.

**Main outcome measures** Receiving mentorship rated as very good or excellent in 1 or more of 6 content areas relevant to respondents' professional lives, and information about demographic and practice characteristics, faculty ratings of their local departments and main practice settings, teaching activities, professional development, leadership, job satisfaction, and health. Bivariate and multivariate analyses identified variables associated with receiving high-quality mentorship.

### EDITOR'S KEY POINTS

- Mentorship is a vital component of faculty development. This study aimed to examine family medicine faculty members' experiences with mentorship and to identify factors associated with receiving high-quality mentorship.
- Most respondents had received and provided mentorship in various areas, and almost 60% had received very good or excellent mentorship in at least 1 area. Informal mentorship was most common. Most indicated that it was important to receive mentorship for their overall career, clinical practice, teaching, leadership, and work-life balance, whereas less than one-third perceived research mentorship to be important.
- Higher mentorship quality was strongly associated with a supportive context, so strategies that strengthen the local culture should enhance mentorship quality. Further, mentorship quality might need to be enhanced for midcareer or senior faculty members, as they were less likely to report high-quality mentorship.

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**Results** The response rate was 66.8%. Almost all (95.0%) respondents had received mentorship in several areas, with informal mentorship being the most prevalent mode. Approximately 60% of respondents rated at least 1 area of mentoring as very good or excellent. Multivariate logistic regression identified 5 factors associated with an increased likelihood of rating mentorship quality as very good or excellent: positive perceptions of their local department (odds ratio [OR]=4.02, 95% CI 2.47 to 6.54,  $P<.001$ ); positive ratings of practice infrastructure (OR=1.86, 95% CI 1.23 to 2.80,  $P=.003$ ); increased frequency of receiving mentorship (OR=2.78, 95% CI 1.59 to 4.89,  $P<.001$ ); fewer years in practice (OR=1.93, 95% CI 1.19 to 3.12,  $P=.007$ ); and practising in a family practice teaching unit (OR=1.51, 95% CI 1.01 to 2.27,  $P=.040$ ).

**Conclusion** With increasing emphasis on distributed education and community-based teachers, family medicine faculties will need to develop strategies to support effective mentorship across a range of settings and career stages.

# Ce que pensent du mentorat les professeurs en médecine familiale et l'expérience qu'ils en ont

*Observations tirées d'une enquête quantitative basée sur des carrières de travail et de leadership*

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## Résumé

**Objectif** Recueillir des données sur les types de mentorat, leur fréquence, leur importance et la qualité des mentorats dont ont profité les professeurs de médecine familiale, et identifier les variables qui favorisent un mentorat de qualité supérieure.

**Type d'étude** Une enquête transmise par Internet à tous les professeurs d'un département universitaire de médecine familiale.

**Contexte** Le département de médecine familiale et communautaire de l'Université de Toronto, en Ontario.

**Participants** Tous les professeurs (n = 1029) ont été invités à participer à l'enquête.

**Principaux paramètres à l'étude** Le fait d'avoir été l'objet d'un mentorat jugé très bon ou excellent dans au moins 1 des 6 domaines de contenu jugés pertinents pour le travail professionnel des répondants ainsi que des renseignements sur leurs caractéristiques démographiques et leur type de pratique; les cotes attribuées par les professeurs à leur département et à leur principal milieu de pratique, de même qu'à leurs activités d'enseignement, leur développement professionnel, leur leadership, leur satisfaction au travail et leur santé. Des analyses bi- et multivariées ont permis d'identifier les variables favorisant un mentorat de qualité supérieure.

**Résultats** Le taux de réponse était de 66,8 %. La plupart des répondants (95 %) avaient profité de mentorats dans plusieurs domaines, le mentorat informel étant le type le plus fréquent. Environ 60 % des répondants étaient d'avis que dans au moins un domaine, le mentorat avait été très bon ou excellent. L'analyse de régression logistique multivariée a identifié 5 facteurs qui augmentent la probabilité qu'un mentorat soit jugé très bon ou excellent : une opinion favorable du département (rapport de cotes (RC) = 4,02, IC à 95 % 2,47 – 6,54, P < ,001); des cotes favorables pour les infrastructures de pratique (RC = 1,86, IC à 95 % 1,23 à 2,80, P < ,003); avoir profité de plusieurs mentorats (RC = 2,78, IC à 95 % 1,59 à 4,89, P < ,001); avoir moins d'années de pratique (RC = 1,93, IC à 95 % = 1,19 à 3,12, P < ,007); et pratiquer dans une unité d'enseignement de médecine familiale (RC = 1,51, IC à 95 % 1,01 à 2,27, P < ,040).

**Conclusion** Étant donné l'importance accrue qu'on accorde à l'enseignement et aux professeurs qui œuvrent dans la communauté, les enseignants en médecine familiale devront développer des stratégies pour s'assurer que le mentorat bénéficie d'un soutien suffisant, et ce, dans divers contextes et à divers moments de la carrière.

### POINTS DE REPÈRE DU RÉDACTEUR

- Le mentorat est un élément essentiel du développement d'un professeur. Cette étude voulait déterminer l'expérience qu'en ont les professeurs de médecine familiale et identifier les facteurs permettant d'offrir un mentorat de qualité supérieure.
- La plupart des répondants avaient eu un mentor et avaient eux-mêmes agi comme mentor dans différents domaines; près de 60 % d'entre eux avaient profité d'un mentorat de très bonne ou d'excellente qualité dans au moins un domaine. Le plus souvent, il s'agissait d'un mentorat informel. La plupart des répondants soulignaient l'importance d'avoir d'un mentor pour l'ensemble de la carrière, pour la pratique clinique, l'enseignement et le leadership, et pour l'équilibre travail-famille, alors que moins d'un tiers estimaient que le mentorat était important pour la recherche.
- On a observé une forte corrélation entre la présence d'un soutien du milieu et un mentorat de très bonne qualité, de sorte que les stratégies qui favorisent un tel soutien devraient améliorer la qualité du mentorat. De plus, il y aurait peut-être lieu d'améliorer la qualité des mentorats offerts par les professeurs plus âgés ou en milieu de carrière, puisque ces derniers étaient moins susceptibles de rapporter un mentorat de grande qualité.

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**M**entorship is a vital component of faculty development in academic medicine and integral to growth in our roles as clinicians, teachers, leaders, and scholars.<sup>1</sup> Much of the academic medical mentorship literature describes the nature of effective mentoring programs and roles, and the characteristics of successful mentoring relationships, both formal and informal.<sup>2-6</sup> Straus and Sackett's review of the research on mentorship in academic medicine revealed moderate-quality evidence that academic clinicians who are mentored report greater career satisfaction, are more productive, are promoted more quickly, and are more likely to stay at their institutions.<sup>7</sup>

However, few studies describe mentorship activities in academic family medicine departments.<sup>8,9</sup> As academic family medicine has evolved, with changes that have affected the distribution, support, role expectations, and career satisfaction of faculty, understanding the perceptions and experiences of mentorship in this group is important.<sup>10-12</sup> The purpose of this study was to identify the types, frequency, perceived importance, and quality of mentorship received within a large academic family medicine department, and to identify variables associated with receiving high-quality mentorship.

## METHODS

### Setting

In 2011, a work-life and leadership survey was sent to all faculty members of the Department of Family and Community Medicine (DFCM) at the University of Toronto in Ontario, the largest department of family medicine in North America. At the time of the survey there were 1029 faculty members, 248 postgraduate trainees, 226 clinical clerks, 26 faculty members with protected research time funded by the DFCM, and more than 20 family practice teaching units, with clinical teaching and research also taking place in dozens of community-based practices and clinics.

### Questionnaire development and dissemination

The questionnaire was developed after reviewing the literature and incorporating findings from an earlier qualitative study conducted at the DFCM that focused on leadership issues.<sup>12</sup> The questionnaire was pretested, revised, and pilot-tested before implementation. The final questionnaire contained 12 sections and collected information about demographic characteristics; practice patterns; teaching, clinical, administration, and research activities; mentorship received and given; past and present leadership roles; training needs and preferences; job satisfaction; health status; stress; and burnout. The questionnaire also collected information about perceptions of supports provided, recognition, communication,

retention, workload, teamwork, respect, resource distribution, remuneration, and infrastructure support. Faculty members were contacted via personalized e-mails that included personalized links to the online survey. Survey implementation followed a modified Dillman approach<sup>13</sup> that included several survey promotion activities designed to legitimize the survey, incentives (prizes), and up to 7 personalized contacts. White et al described the design and implementation methods in detail.<sup>14</sup> The questionnaire is available from the authors.

### Analysis

We analyzed the data using SPSS, version 21. Before analysis, we decided on the most appropriate ways to recode categorical data. Questions that asked participants to select 1 response on a 5-point Likert scale were collapsed into 2 meaningful categories. For example, we collected information about several distinct constructs, such as perceptions of workload, retention, teamwork, respect, and support. Each of these constructs consisted of several questions that were each rated using a 5-point Likert scale (poor to excellent). We created a mean score for each of the constructs and then dichotomized these means into ratings of less than 4 (where 1 was poor, 2 was fair, and 3 was good) and 4 or greater (where 4 was very good and 5 was excellent) to determine an overall rating for each construct. The rationale for this approach was that individual questions within each construct were conceptually correlated, with high internal consistency (ie, values of Cronbach  $\alpha$  near unity). The resulting constructs (eg, perceptions of workload, teamwork) were dichotomous variables that represented either ratings of very good and excellent or poor, fair, and good. Similarly, we created 1 overall composite variable for all local department ratings (including support, recognition, communication, leadership, etc). We did not recode questions that employed continuous scales.

The outcome variable was the response to the question, "How would you rate the overall quality of the mentoring that you have received in each of the following areas?" The 6 areas were overall career, clinical practice, teaching, leadership, research, and work-life balance. Respondents ranked each role on the 5-point Likert scale. For bivariate analyses (examining variables associated with receiving high-quality mentorship) and multivariate logistic regression analysis, we created a composite outcome for mentorship quality, comparing ratings of very good and excellent in any of the 6 areas with ratings of good, fair, and poor in all of the 6 roles. Before bivariate analyses, we selected the survey questions associated with receiving very good or excellent mentorship, based on the literature and our own hypotheses.

As appropriate, *t* tests and  $\chi^2$  tests were used to identify which variables were statistically associated with receiving high-quality mentorship. For each of these

variables, we calculated descriptive statistics (numbers and percentages or means and standard deviations) along with *P* values, odds ratios, and 95% confidence intervals. We used a probability level of less than .05 to determine statistical significance. Variables found to be statistically significant in the bivariate analysis were then fitted using multivariate regression analysis to obtain a parsimonious set of variables that were independently associated with high-quality mentorship. We obtained ethics approval to conduct this study from the University of Toronto Research Ethics Board.

## RESULTS

### Participant characteristics

The survey was administered to a total of 1029 faculty, 687 of whom responded (66.8% response rate). The mean age of respondents was 47.5 years (range 29 to 82) and women represented 52.3% of the sample (Table 1). By far most respondents had a medical degree (94.5%), with the remainder being doctoral researchers and allied health professionals. Most respondents worked in an interprofessional practice (56.7%), with group practices being the next most popular environment (36.5%), followed by solo practice (6.8%).

### Faculty mentorship experiences

Most respondents received mentorship in at least 1 area (Table 2). Informal mentorship was the most frequently reported type of mentorship received, followed by combined formal and informal mentorship. Most respondents indicated that it was important to receive mentorship for their overall career, clinical practice, teaching, leadership, and work-life balance, whereas less than one-third perceived research mentorship as being important to receive. More than three-quarters of the respondents indicated they provided overall career and clinical mentorship, with smaller percentages providing teaching, leadership, and work-life balance mentorship, and only 25.3% indicated ever providing research mentorship. The overall ratings of high-quality mentorship received (ie, very good and excellent combined) were highest for clinical mentorship, followed by teaching, overall career, leadership, work-life balance, and research mentorship.

### Bivariate analyses

Of the 597 faculty members who rated the overall quality of the mentorship they had received, 354 (59.3%) rated at least 1 area of mentoring as very good or excellent (Table 3). Of the 30 variables found to be significantly associated with overall quality of mentorship on bivariate analysis (Table 3), 12 were related to respondent ratings of their local department

**Table 1. Demographic and practice characteristics of respondents**

CHARACTERISTIC	VALUE
Mean (SD) age, y (N = 604)	47.5 (10.6)
Sex, n (%) (N = 620)	
• Women	324 (52.3)
• Men	296 (47.7)
Marital status, n (%) (N = 616)	
• Married or common-law	536 (87.0)
• Other	80 (13.0)
Ethnicity, n (%) (N = 613)	
• White	444 (72.4)
• Chinese	45 (7.3)
• South Asian	63 (10.3)
• Other	61 (10.0)
Place of birth, n (%) (N = 622)	
• Born in Canada	470 (75.6)
• Other	152 (24.4)
Education, n (%) (N = 619)	
• Have MD	585 (94.5)
• Do not have MD	34 (5.5)
Certification, n (%) (N = 687)	
• Have CCFP	542 (78.9)
• Certification unknown	145 (21.1)
Length of time licensed to practise, y, n (%) (N = 605)	
• 0–5	115 (19.0)
• 6–15	174 (28.8)
• ≥ 16	316 (52.2)
Mean (SD) h worked per wk (N = 622)	46.4 (17.0)
Works overtime, n (%) (N = 687)	
• Yes	604 (87.9)
• Unknown	83 (12.1)
Mean (SD) on-call h/mo (N = 539)	70.7 (110.1)
Practice type (N = 614)	
• Interprofessional practice	348 (56.7)
• Group practice	224 (36.5)
• Solo practice	42 (6.8)
Work setting (N = 687)	
• Family practice teaching unit	195 (28.4)
• Other	492 (71.6)
Payment model (N = 617)	
• Fee for service	277 (44.9)
• Salary	149 (24.1)
• Sessional payment	106 (17.2)
• Capitation	85 (13.8)

CCFP—Certification in Family Medicine, MD—medical degree.

**Table 2. Family medicine faculty mentorship experience by type of mentorship**

MENTORSHIP EXPERIENCE	AREA OF MENTORSHIP, N (%)					
	OVERALL CAREER	CLINICAL	TEACHING	LEADERSHIP	RESEARCH	WORK-LIFE BALANCE
Type of mentorship received						
• Formal	23 (3.9)	50 (8.7)	73 (12.4)	36 (6.2)	45 (9.1)	10 (1.7)
• Informal	383 (65.1)	293 (50.7)	246 (41.7)	304 (52.4)	155 (31.2)	336 (58.2)
• Both	94 (16.0)	165 (28.5)	188 (31.9)	79 (13.6)	81 (16.3)	51 (8.8)
• Neither	88 (15.0)	70 (12.1)	83 (14.1)	161 (27.8)	215 (43.4)	180 (31.2)
Ever provided mentorship						
• Yes	468 (75.7)	497 (81.3)	391 (63.5)	255 (41.9)	144 (25.3)	411 (66.7)
• No	150 (24.3)	114 (18.7)	225 (36.5)	354 (58.1)	425 (74.7)	205 (33.3)
Importance of mentorship in current role						
• Somewhat or very	387 (61.9)	379 (60.6)	413 (66.1)	362 (57.9)	192 (30.7)	349 (55.8)
• Not at all, not very, or neutral	238 (38.1)	246 (39.4)	212 (33.9)	263 (42.1)	433 (69.3)	276 (44.2)
Overall mentorship quality						
• Poor	94 (16.0)	54 (9.3)	67 (11.4)	105 (18.2)	178 (36.6)	117 (20.2)
• Fair	143 (24.4)	97 (16.7)	132 (22.4)	156 (27.1)	142 (29.2)	182 (31.5)
• Good	156 (26.6)	159 (27.4)	182 (30.9)	174 (30.2)	97 (19.9)	178 (30.8)
• Very good	150 (25.6)	188 (32.4)	157 (26.7)	117 (20.3)	48 (9.9)	79 (13.7)
• Excellent	44 (7.5)	83 (14.3)	51 (8.7)	24 (4.2)	22 (4.5)	22 (3.8)

(eg, ratings of support, recognition, communication, leadership, teamwork); 1 was related to a rating of infrastructure support; 2 were teaching activities; 1 was related to professional development; 2 were related to leadership; 2 were mentorship variables; 2 were related to burnout; 3 were job satisfaction variables; 2 were health status variables; and 3 were demographic or practice characteristics.

### Multivariate logistic regression analysis

The final adjusted multivariate logistic regression model identified 5 factors that were independently associated with receiving high-quality mentorship: overall positive faculty ratings of their local department, positive faculty ratings of infrastructure support at their primary practice setting, greater frequency of mentorship, being a junior faculty member, and working in a family practice teaching unit (Table 4).

## DISCUSSION

This study describes the types and characteristics of mentorship activity and the variables that are associated with the perception of high-quality mentorship in a distributed academic family medicine department. The large number of faculty members and the range of practice settings make this relevant for other academic departments aiming to build a culture of mentorship in their organizations.

Several findings add to the existing literature. First, 95.0% of respondents had received mentorship, which compares favourably with other academic medical organizations, where the numbers ranged from 45% to 98%.<sup>9,15-17</sup>

Second, we found that informal mentoring relationships among faculty predominated. Informal mentoring occurs when mentors and mentees connect naturally without the aid of a third party. This can have implications for the success of the relationship.<sup>6</sup> Straus and Sackett maintain that “although successful mentoring can develop through formal assignment, the relationship varies with the individuals involved and will succeed or fail depending on whether a personal connection is in place or can develop over time.”<sup>7</sup> During the 5 years before this study, various supports and initiatives were developed in the DFCM to support both formal and informal mentoring relationships.<sup>18</sup>

Third, nearly 60% of faculty respondents rated at least 1 area of mentorship as very good or excellent, with mentorship in the areas of clinical practice and teaching being rated highest, followed by overall career, leadership, work-life balance, and research mentorship. These results might reflect the reality that most DFCM faculty members are clinician-teachers who work in community sites, where they might not have protected time for research or other scholarly activities. Other studies of mentorship experiences have shown, however, that faculty members with more teaching and patient care responsibilities were less likely to receive mentorship than faculty members with a research focus.<sup>17</sup>

**Table 3. Variables associated with overall rating of mentorship quality: Of the 597 total respondents who rated the overall quality of mentorship, 354 respondents rated at least 1 area as very good or excellent.**

VARIABLES	OVERALL QUALITY OF MENTORSHIP,* N (%)		UNADJUSTED ODDS RATIO (95% CI)	P VALUE†
	VERY GOOD OR EXCELLENT	POOR, FAIR, OR GOOD		
<b>Local department</b>				
Rating of overall support for teaching, research, leadership, mentorship, and career (N = 579)				
• Very good or excellent	166 (75.1)	55 (24.9)	3.05 (2.11-4.41)	< .001
• Poor, fair, or good	178 (49.7)	180 (50.3)	Reference	
Rating of overall recognition of teaching, research, leadership, and mentorship (N = 577)				
• Very good or excellent	150 (77.3)	44 (22.7)	3.39 (2.29-5.01)	< .001
• Poor, fair, or good	192 (50.1)	191 (49.9)	Reference	
Rating of communication (N = 577)				
• Very good or excellent	217 (74.1)	76 (25.9)	3.68 (2.59-5.23)	< .001
• Poor, fair, or good	124 (43.7)	160 (56.3)	Reference	
Rating of leadership (N = 567)				
• Very good or excellent	194 (70.5)	81 (29.5)	2.53 (1.79-3.58)	< .001
• Poor, fair, or good	142 (48.6)	150 (51.4)	Reference	
Rating of effort to attract and retain the best academic leaders (eg, undergraduate, postgraduate, professional development, and research directors) (N = 520)				
• Very good or excellent	182 (71.9)	71 (28.1)	2.70 (1.88-3.89)	< .001
• Poor, fair, or good	130 (48.7)	137 (51.3)	Reference	
Rating of mission, vision, and values (N = 518)				
• Very good or excellent	216 (73.5)	78 (26.5)	3.50 (2.42-5.06)	< .001
• Poor, fair, or good	99 (44.2)	125 (55.8)	Reference	
Rating of workload and practice (N = 533)				
• Very good or excellent	131 (77.1)	39 (22.9)	3.13 (2.07-4.72)	< .001
• Poor, fair, or good	188 (51.8)	175 (48.2)	Reference	
Rating of teamwork (N = 527)				
• Very good or excellent	226 (70.0)	97 (30.0)	2.89 (2.01-4.17)	< .001
• Poor, fair, or good	91 (44.6)	113 (55.4)	Reference	
Rating of physician involvement in programs and planning (N = 529)				
• Very good or excellent	181 (78.7)	49 (21.3)	4.25 (2.88-6.27)	< .001
• Poor, fair, or good	139 (46.5)	160 (53.5)	Reference	
Rating of resource distribution for clinical work, teaching, and research (N = 509)				
• Very good or excellent	153 (76.1)	48 (23.9)	3.15 (2.12-4.66)	< .001
• Poor, fair, or good	155 (50.3)	153 (49.7)	Reference	
Rating of remuneration (N = 521)				
• Very good or excellent	153 (71.8)	60 (28.2)	2.45 (1.70-3.56)	< .001
• Poor, fair, or good	157 (51.0)	151 (49.0)	Reference	
Rating of respect (N = 557)				
• Very good or excellent	240 (74.5)	82 (25.5)	4.47 (3.11-6.42)	< .001
• Poor, fair, or good	93 (39.6)	142 (60.4)	Reference	
<b>Main practice setting</b>				
Rating of main practice setting with regard to infrastructure support (N = 571)				
• Very good or excellent	158 (73.8)	56 (26.2)	2.62 (1.81-3.79)	< .001
• Poor, fair, or good	185 (51.8)	172 (48.2)	Reference	
<b>Teaching activities</b>				
Participated in clerkship teaching activities (N = 597)				
• Ever	214 (63.5)	123 (36.5)	1.49 (1.07-2.07)	.02
• Never	140 (53.8)	120 (46.2)	Reference	
Participated in resident teaching activities (N = 597)				
• Ever	271 (62.4)	163 (37.6)	1.60 (1.11-2.30)	.01
• Never	83 (50.9)	80 (49.1)	Reference	
<b>Professional development</b>				
Importance of academic career development and promotion (N = 597)				
• Somewhat important or very important	125 (69.4)	55 (30.6)	1.87(1.29-2.70)	< .001
• Not at all, not very, or neutral	229 (54.9)	188 (45.1)	Reference	

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VARIABLES	OVERALL QUALITY OF MENTORSHIP,* N (%)			UNADJUSTED ODDS RATIO (95% CI)	P VALUE†
	VERY GOOD OR EXCELLENT	POOR, FAIR, OR GOOD			
<b>Leadership</b>					
Have taken a graduate degree related to leadership (N = 597)					
• Yes	190 (65.3)	101 (34.7)	1.63 (1.17-2.27)	.004	
• No	164 (53.6)	142 (46.4)	Reference		
Likelihood of participating in a workshop or training program on team building (N = 597)					
• Somewhat likely or very likely	140 (67.6)	67 (32.4)	1.72 (1.21-2.45)	.003	
• Not at all, not very, or neutral	214 (54.9)	176 (45.1)	Reference		
<b>Mentorship</b>					
Frequency with which mentoring was received (N = 597)					
• Monthly or more often	326 (62.8)	193 (37.2)	3.02 (1.84-4.95)	< .001	
• Less than monthly	28 (35.9)	50 (64.1)	Reference		
Rating of importance of receiving work-life balance mentoring in current role (N = 597)					
• Somewhat important or very important	139 (66.8)	69 (33.2)	1.63 (1.15-2.32)	.006	
• Not at all, not very, or neutral	215 (55.3)	174 (44.7)	Reference		
<b>Burnout</b>					
Mean (SD) Maslach Burnout Inventory rating for Emotional Exhaustion subscale* (N = 595)	19.14 (10.33) <sup>§</sup>	21.39 (11.97) <sup>  </sup>	0.98 (0.97-0.99)	.01 <sup>†</sup>	
Mean (SD) Maslach Burnout Inventory rating for Personal Accomplishment subscale* (N = 595)	6.56 (5.87) <sup>§</sup>	7.79 (6.39) <sup>  </sup>	0.97 (0.94-0.99)	.02 <sup>†</sup>	
<b>Job satisfaction</b>					
Overall rating of job satisfaction (N = 595)					
• Satisfied or very satisfied	204 (67.1)	100 (32.9)	1.94 (1.40-2.71)	< .001	
• Very dissatisfied, dissatisfied, or not sure	149 (51.2)	142 (48.8)	Reference		
Rating of quality of local department as a place to practise medicine (N = 530)					
• Very good or excellent	192 (75.9)	61 (24.1)	3.56 (2.45-5.17)	< .001	
• Poor, fair, or good	130 (46.9)	147 (53.1)	Reference		
Likelihood of recommending local department to another physician or new recruit (N = 595)					
• Somewhat likely or very likely	311 (63.6)	178 (36.4)	2.66 (1.73-4.10)	< .001	
• Uncertain, somewhat, or very unlikely	42 (39.6)	64 (60.4)	Reference		
<b>Health status</b>					
Self-rated stress at work in the past year (N = 594)					
• Not at all, not very, or a bit stressful	291 (61.9)	179 (38.1)	1.63 (1.09-2.42)	.02	
• Quite stressful or extremely stressful	62 (50.0)	62 (50.0)	Reference		
Self-rated stress in life in the past year (N = 594)					
• Not at all, not very, or a bit	301 (61.9)	185 (38.1)	1.75 (1.15-2.67)	.01	
• Quite stressful or extremely stressful	52 (48.1)	56 (51.9)	Reference		
<b>Demographic and practice characteristics</b>					
Length of time licensed for independent practice, y,** (N = 577)					
• 0-5	82 (71.9)	32 (28.1)	1.97 (1.26-3.08)	.003	
• ≥6	262 (56.6)	201 (43.4)	Reference		
Mean (SD) faculty member age, y, (N = 576)	45.76 (10.39) <sup>††</sup>	49.54 (10.48) <sup>††</sup>	0.97 (0.95-0.98)	< .001	
Work in family practice teaching unit (N = 597)					
• Yes	128 (67.4)	62 (32.6)	1.65 (1.15-2.37)	.006	
• No	226 (55.5)	181 (44.5)	Reference		

\*Obtained from the question, "How would you rate the overall quality of the mentoring that you have received in each of the following areas?" The 6 areas included overall career, clinical, teaching, leadership, research, and work-life balance. A composite outcome was created by dichotomizing responses into individuals who rated overall mentorship quality to be very good or excellent in any of the 6 areas versus those who did not rank any of the mentoring received as very good or excellent.

†Using  $\chi^2$  test.

‡A measure of feelings of being overextended and exhausted by work. Higher scores indicate higher emotional exhaustion (range 0 to 54).

§N = 353.

||N = 242.

†Using *t* test.

‡A measure of feelings of successful achievement in work. Higher scores indicate less personal accomplishment (range 0 to 48).

\*\*Junior faculty member was defined in the questionnaire as licensed to practise for 0-5 y, in contrast to ≥6 y.

††N = 342.

††N = 234.

**Table 4. Final logistic regression model of variables associated with receiving high-quality mentorship (rating of very good or excellent): Hosmer-Lemeshow goodness-of-fit test = 0.26;  $\rho^2$  (McFadden pseudo  $R^2$ ) = 0.12 (values between 0.2 and 0.4 suggest a very good fit); N = 557.**

VARIABLES	ADJUSTED ODDS RATIO (95% CI)*	P VALUE
Composite ratings of local department†		
• Very good or excellent	4.02 (2.47-6.54)	< .001
• Good, fair, or poor	Reference	
Rating of main practice setting with regard to infrastructure support‡		
• Very good or excellent	1.86 (1.23-2.80)	.003
• Good, fair, or poor	Reference	
Frequency with which mentoring was received		
• Monthly or more often	2.78 (1.59-4.89)	< .001
• Less than monthly	Reference	
Length of time licensed for independent practice, y§		
• 0-5	1.93 (1.19-3.12)	.007
• ≥ 6	Reference	
Work in family practice teaching unit		
• Yes	1.51 (1.01-2.27)	.040
• No	Reference	

\*Odds ratios after adjustment for all other variables in the model. An odds ratio > 1 indicates increased likelihood of faculty rating the quality of mentorship as being very good or excellent. For example, faculty who were licensed for ≤ 5 y were almost twice as likely to report that they had received very good or excellent mentorship than faculty who were licensed for ≥ 6 y were, after adjusting for all of the other variables in the model.

†An overall composite rating of their local department by faculty. It includes the 12 individual composite constructs from Table 3, such as ratings of support, recognition, communication, etc.

‡A composite variable that included the quality of information systems; process for space allocation; up-to-date equipment; support from other family physicians; support from consultants; quality of nursing support; quality of clinical administrative support; and quality of academic administrative support.

§Junior faculty member was defined in the questionnaire as licensed to practise for 0-5 y, in contrast to ≥ 6 y.

Fourth, our multivariate analysis identified 5 contextual and individual factors that were independently associated with high mentorship quality. Higher mentorship frequency (monthly or greater) was associated with high quality, suggesting that frequency of contact between mentor and mentee shows commitment to their relationship, which has been reported by others to be important.<sup>15,16,19</sup> Context emerged as being important: positive ratings of the local department (including support, recognition, communication, and teamwork) and of infrastructure support (including people and resources), as well as working in a teaching unit, were all independent predictors of perceived high-quality mentorship. These findings reinforce the conclusion of a systematic review of the qualitative literature on the importance of a “facilitating environment” for successful mentorship.<sup>3</sup> Faculty in teaching units might perceive mentorship quality to be higher owing to proximity to multiple potential academic mentors or more protected academic time, neither of which was measured in this study. Nevertheless, an important finding for a department that relies on distributed and community-based academic sites is that perception of local department support was the strongest predictor of high ratings for mentorship.

Finally, junior faculty were more likely to rate the quality of the mentorship they had received as very good or excellent; these faculty members might have been encouraged to seek out mentors or take advantage of mentoring opportunities. This finding is in contrast to a similar study by Riley et al, in which junior faculty members were less likely to be satisfied with mentorship in their academic family medicine department.<sup>9</sup>

The bivariate analysis also revealed that high-quality mentorship was positively associated with multiple potential beneficial outcomes for faculty such as higher levels of job satisfaction, less stress, and more interest in pursuing professional development and leadership opportunities. These findings serve to strengthen the reported benefits of mentorship both for the faculty members involved and the organization.<sup>5-7,15</sup>

### Strengths and limitations

This study has a number of strengths, including the comprehensive survey design, the very good response rate, and the rigorous methodology used for data analysis. Another strength is that this study assessed mentorship as part of a comprehensive survey that addressed a range of personal, environmental, and work-related



issues. Compared with surveys that focus solely on mentorship or the effect of a mentorship program, the current study permitted analysis of a broader range of contextual factors that can affect mentorship quality. It is limited by the fact that it was a single-site, cross-sectional survey delivered at a single point in time.

## Conclusion

This study showed that 3 contextual factors (positive perceptions of the local department, infrastructure support, and working in a teaching unit), junior faculty status, and frequency of mentorship were associated with perceptions of high mentorship quality for faculty in an academic department of family medicine. Because higher mentorship quality was strongly associated with a supportive context, strategies that strengthen the local culture should enhance mentorship quality. Further, mentorship quality might need to be enhanced for mid-career or senior faculty members. With rising expectations for academic family physicians to successfully engage in clinical and education research and scholarship, high-quality mentorship in these domains will be crucial. Ensuring access to opportunities for mentorship and fostering a culture of mentorship for all academic physicians both within and outside of formal teaching units will become increasingly important.

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### Contributors

**Drs Stubbs, White, and Kwong** conceived the study as members of the Department of Family and Community Medicine Academic Leadership Task Force and the professional development program. All authors contributed to study design. **Dr Krueger** designed the survey and performed data acquisition,

supported by all authors. **Mr Meaney** and **Dr Krueger** analyzed the data and all authors contributed to data interpretation. **Dr Stubbs** wrote the initial draft of the paper and all authors provided critical revision.

### Competing interests

None declared

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