Does formal mentoring for faculty members matter? A survey of clinical faculty members

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BACKGROUND Mentoring relationships, for all medical school faculty members, are an important component of lifelong development and education, yet an understanding of mentoring among medical school clinical faculty members is incomplete. This study examined associations between formal mentoring relationships and aspects of faculty members' engagement and satisfaction. It then explored the variability of these associations across subgroups of clinical faculty members to understand the status of mentoring and outcomes of mentoring relationships. The authors hypothesised that academic clinical faculty members currently in formal mentoring relationships experience enhanced employee engagement and satisfaction with their department and institution.

METHODS Medical school faculty members at 26 self-selected USA institutions participated in the 2011–2014 Faculty Forward Engagement Survey. Responses from clinical faculty members were analysed for relationships between mentoring status and perceptions of engagement by faculty members.

RESULTS Of the 11 953 clinical faculty respondents, almost one-third reported having a formal mentoring relationship (30%; 3529). Most mentored faculty indicated the relationship was important (86%; $n = 3027$), and over three-fourths were satisfied with their mentoring experience (77%; $n = 2722$). Mentored faculty members across ranks reported significantly higher levels of satisfaction and more positive perceptions of their roles in the organisation. Faculty members who were not receiving mentoring reported significantly less satisfaction with their workplace environment and lower overall satisfaction.

CONCLUSIONS Mentored clinical faculty members have significantly greater satisfaction with their department and institution. This multi-institutional study provides evidence that fostering mentoring opportunities may facilitate faculty members' satisfaction and engagement, which, in turn, may help medical schools retain high-quality faculty staff committed to the multidimensional academic mission.

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INTRODUCTION

Mentoring has traditionally been defined as 'a dynamic, reciprocal relationship in a work environment between an advanced career incumbent (mentor) and a beginner (mentee) aimed at promoting the career development of both'.[1] Successful mentoring may be associated with career choice, development, advancement and job satisfaction.[1–7] In academic medicine, in particular, mentoring is perceived as important for facilitating the personal and professional development and success of faculty members.[8–10] Further, research suggests that formalised mentoring programmes not only benefit mentees, but also the mentors and the organisations in which mentoring occurs.[11,12]

In academic medicine, recent changes to healthcare delivery systems and ongoing discovery and innovation have altered faculty members' work life by increasing clinical, research and educational demands on faculty staff. These pressures can lead to decreased satisfaction, less engagement and burnout, and each of these can contribute to high turnover of faculty staff, creating great financial and human capital costs to institutions. Clinical faculty members face demands to increase clinical productivity while providing high-quality patient care and education. In the face of these demands, clinical faculty staff also have a longer pathway to promotion and advancement than their basic science counterparts.[13] Mentoring may be of particular relevance to clinical faculty staff, as formal mentoring programmes, especially for junior faculty members, have been viewed as an appropriate response to changes in the health care enterprise, to help facilitate academic progression and to help facilitate engagement of faculty members.

Certainly interest in developing mentoring programmes in various health professional settings has grown over the last two decades, with considerable range in their scope and structure.[2,14,15] Outcomes include that mentored faculty members frequently hold or assume leadership positions within the organisation,[8] have an enhanced sense of organisational 'fit' and empowerment,[4,5,9,16] demonstrate greater productivity[4] and self-efficacy,[5] have higher retention rates[6,7,17–19] and experience improved job satisfaction.[20] Some research, however, suggests that large-scale evidence to support the value of mentoring is not strong,[4] which may negatively impact the resources institutions are willing to invest in formal mentoring programmes. Further, despite the substantial benefits of mentoring and its increased recognition in attracting and retaining the best and brightest physicians to careers in academic medicine,[21] surveys have suggested that only 26% of faculty members report having had a formal mentor in their own institution, even though 61% believed it to be important.[22] Demonstrating the value of mentoring to individual faculty members and to academic institutions across a broad range of faculty staff is vital if mentoring is to continue to have a central role in academic medicine.

Although mentoring of faculty members is an important issue in medical schools across the world, much of the extant literature reflects studies conducted with faculty members from USA and Canadian medical schools. Articles on mentoring of faculty members have appeared in the USA and Canadian literature for many years, as mentoring has become an accepted development tool in North American academic medicine. Obviously exceptions exist, including, for example, mentoring programmes such as those described by Connor *et al.* in England during the late 1990's.[23] Many countries continue to shift the focus to development of faculty members, including mentoring programmes, in efforts to engage faculty members and, ultimately, improve organisational outcomes.

To address the gap in large-scale evidence around formal mentoring for clinical faculty members, we analysed data from the Faculty Forward Engagement Survey, conducted by the Association of American Medical Colleges. We hypothesised that academic faculty members in clinical departments who are currently in mentoring relationships experience enhanced employee engagement and satisfaction with their department and medical school as a place to work. We define engagement as grounded in 'the interplay between an employee's cognitive commitment, emotional attachment, and the resulting behavioral outcomes', such as institutional retention and increased effort.[23] We also explored differences in perceptions among those receiving formal mentorship, those not receiving mentorship who do not view mentorship as important, and those not receiving mentorship who do view mentorship as important.

METHOD

Twenty-six medical schools accredited by the Liaison Committee on Medical Education (the accrediting body for medical schools, leading to the MD degree

in the USA and Canada) agreed to participate in the 2011–2014 administrations of the Faculty Forward Engagement Survey. The survey was administered between October 2011 and October 2014 to all full- and part-time faculty members from the participating institutions (n = 24 078). These 24 078 faculty members who were invited to participate approximate the overall population of faculty members of all accredited schools in terms of distribution by department type (i.e. basic science versus clinical department). In our analysis, we focus on just the faculty members from clinical departments (21 076/24 078). The American Institutes of Research provided ethical oversight and granted approval for this data collection and research.

The survey was first developed and tested in 2008 and fully administered within 23 medical schools in 2009. The development of the survey items was informed by: literature reviews; expert feedback from individuals involved in survey design, statistics, economics and psychology, and medical faculty members; and focus groups with faculty members. The survey was refined in 2010 based on psychometric analyses of the 2009 data, including factor analyses, reliability testing and regression modelling.[24] The updated version of the survey instrument has been administered since 2011 and consists of 12 domains of questions developed to assess the factors that drive employee engagement, including, for example, nature of work, workplace culture, feedback and mentoring, pay and benefits, institutional governance, operations, clinical practice and global satisfaction. These survey questions and domains are conceptually and empirically related to items associated with engagement and satisfaction of faculty members.[25]

In the survey, mentoring relationships were assessed by an item about whether one had a formal agreement with a colleague to provide ongoing career guidance and advice (a yes or no question). The importance of mentoring was assessed by respondents' level of agreement with the statement 'Having a formal mentor at my institution is important to me' (five-point Likert-type item from 'strongly disagree' to 'strongly agree'). To examine our hypothesis we first examined relationships between the presence and importance of mentoring. Next, we analysed items associated with aspects of employee engagement, including perceptions of the clarity of their roles, institutional mission, promotion and tenure criteria, organisational 'fit', relationships with colleagues, and overall satisfaction with department and institution, using comparative measures, including t-tests, ANOVAs and chi-squared analyses. We used descriptive summary statistics for levels of satisfaction and agreement on survey items. We used t-tests to explore whether differences in responses exist between those who receive mentoring and those who do not, as well as whether there were differences based on faculty rank. We used ANOVAs and *post-hoc* testing to compare faculty members who received mentoring, those who did not receive mentoring, and those who did not receive mentoring but agreed it was important to them. Finally, we used chi-squared analyses to assess significant differences between demographic groups on the collapsed Likert-scale items (e.g. satisfied/very satisfied, neither satisfied nor dissatisfied, or dissatisfied/very dissatisfied). We defined statistical significance as $p < 0.05$ for two-sided tests with confidence intervals at 95%. These aspects of employee engagement were selected for analysis as they have been commonly associated with positive outcomes as a result of mentoring.

RESULTS

Of the clinical faculty members sent a survey invitation, 60.6% responded (n = 12 779/21 076). Of those clinical faculty respondents, 93.5% (11 953/12 779) completed the survey items related to mentoring. Female and majority race respondents were significantly overrepresented in the clinical faculty respondent pool compared to their counterparts (Table 1). ('Minority' refers to respondents who reported their race/ethnicity as American Indian or Alaska Native, Black or African American, Native Hawaiian or other Pacific Islander, or Hispanic, Latino or of Spanish origin. 'Majority' refers to respondents who reported their race/ethnicity as Asian or White.)

Presence and Perceived Importance of Mentoring

We first established a baseline understanding of the presence and perceived importance of mentoring and found that approximately one-third of the clinical faculty respondents (30%; n = 3529/11 953) reported being mentored in a formal relationship. Significantly higher proportions of female than male faculty members (34.6% versus 28.3%; $p = < 0.001$), junior than senior faculty members (42.6% versus19.8%, $p = < 0.001$) and ethnic minority than ethnic majority faculty members (35.9% versus 30.2%, $p = < 0.001$) reported being in a mentoring relationship. Approximately 4% of

Table 1 Demographic comparison of faculty survey population and faculty respondent group from 26 participating schools

	Population (No. of faculty members-all invited to participate)	Survey respondents		chi-squared comparison		
		n	%	χ^2 value	d.f.	Significance
Gender						
Male	12 692	7721	60.83			
Female	7929	5058	63.79	18.113	2	0.001
Race/ethnicity						
Majority	17 572	11 313	64.38			
Minority	1700	1037	61.00	7.698	2	0.006

* Minority defined as: American Indian or Alaska Native; Black or African American; Native Hawaiian or other Pacific Islander; or Hispanic, Latino or of Spanish origin; Majority defined as Asian or White

clinical faculty members (n = 483) reported not knowing whether they had a formal mentoring relationship and they were excluded from further analyses.

Most faculty members (86%; n = 3027) who reported receiving mentoring also viewed the mentoring relationship as important to them and were satisfied with the mentoring they were receiving (77%; n = 2722/3475). Nearly half (51%; n = 4010/7878) of faculty members without formal mentors still noted the importance of having one.

Mentoring and Workplace Engagement

We then analysed the engagement and satisfaction of faculty members in clinical departments who were currently in mentoring relationships in order to determine whether our hypothesis was correct. We did find that the hypothesis was accurate: faculty members with mentors responded significantly more favourably to questions related to workplace engagement, including those related to overall satisfaction and several career growth factors, such as interest in professional advancement, satisfaction with the pace of professional advancement and satisfaction with professional development opportunities (Table 2). Mentored faculty members reported significantly higher levels of departmental and institutional satisfaction, as well as more positive perceptions of their roles within the organisation, growth opportunities, relationships with colleagues and clarity of promotion criteria in the four key mission areas (teaching, research, patient care and administration).

The relationship between mentoring and indicators of workplace engagement was examined among faculty members with and faculty members without formal mentors across academic ranks (assistant, associate and full professors). Faculty members with a mentor rated almost all items related to engagement with the workplace significantly higher compared with faculty members without mentors at the same rank (with one exception for the item 'I am usually willing to give more than is expected of me in my job' among associate professors; Table 3). Although significance is defined as $p = < 0.05$, many of these items showed differences significant at $p = < 0.001$. Further, those with a mentor across all ranks were significantly more satisfied with their departments and their schools as places to work.

To assess perceptions of the work environment, faculty members who (i) received mentoring, (ii) did not receive mentoring but strongly agreed or agreed that having a formal mentor at their institution was important to them and (iii) did not receive mentoring and did not agree that having a formal mentor at their institution was important to them were analysed (Table 4). The results show that perceptions among faculty members receiving mentoring were the most positive, and perceptions among faculty members who value, but are not receiving, formal mentoring were the lowest, among the three groups analysed, except in one instance regarding opinions

Table 2 Comparison of survey respondents by mentoring status, Faculty Forward Engagement Surveys, 2011–2014

	All faculty respondents who do not receive mentoring		All faculty respondents who receive mentoring		*t*-test	
Survey Item	**Mean (no.)**	**SD**	**Mean (no.)**	**SD**	***t*-test**	**Significance**
Having a formal mentor at my institution is important to me	3.49 (7878)	1.03	4.30 (3512)	0.80	44.99	< 0.001
Opportunities for growth and development						
Further professional advancement at this medical school is important to me	4.03 (7636)	0.92	4.38 (3422)	0.74	21.21	< 0.001
I am satisfied with the pace of my professional advancement at this medical school	3.29 (7642)	1.09	3.67 (3384)	1.00	18.10	< 0.001
I am satisfied with my opportunities for professional development at this medical school	3.20 (7681)	1.12	3.72 (3439)	1.00	24.80	< 0.001
Collegiality and collaboration						
How well I 'fit' in my department	3.73 (7755)	1.05	4.04 (3455)	0.88	16.43	< 0.001
How well I 'fit' in my medical school	3.47 (7714)	1.01	3.81 (3446)	0.91	17.51	< 0.001
My departmental colleagues are respectful of my efforts to balance work and home responsibilities	3.75 (7764)	0.94	4.03 (3454)	0.85	15.45	< 0.001
The faculty in my department usually get along well together	3.91 (7768)	0.89	4.14 (3454)	0.76	14.08	< 0.001
I feel appreciated by my departmental colleagues	3.78 (7749)	0.97	4.06 (3446)	0.83	15.73	< 0.001
Overall satisfaction						
All things considered, how satisfied or dissatisfied are you with your department as a place to work?	3.71 (7727)	1.06	4.09 (3437)	0.83	20.27	< 0.001
All things considered, how satisfied or dissatisfied are you with your medical school as a place to work?	3.58 (7699)	0.95	3.89 (3424)	0.82	18.01	< 0.001
Role clarity						
My role here is clear to me	3.86 (7870)	1.06	4.09 (3507)	0.91	11.84	< 0.001
I am usually willing to give more than what is expected of me in my job	4.55 (7862)	0.69	4.57 (3508)	0.66	1.32	0.188
My medical school's mission is clear	3.64 (7555)	0.99	3.89 (3354)	0.86	13.04	< 0.001
It is clear how my day-to-day activities support the medical school's mission	3.60 (7477)	1.01	3.86 (3311)	0.88	13.83	< 0.001
Criteria for promotion						
Teaching/Education: to be promoted in rank, what I must do in this mission area is clear to me	3.36 (6905)	1.07	3.70 (3234)	0.97	16.01	< 0.001
Research/Scholarship: to be promoted in rank, what I must do in this mission area is clear to me	3.43 (6749)	1.05	3.78 (3229)	0.94	16.73	< 0.001
Patient care/Client services: to be promoted in rank, what I must do in this mission area is clear to me	3.35 (6110)	1.07	3.69 (2839)	0.98	15.28	< 0.001
Administration/Institutional service: to be promoted in rank, what I must do in this mission area is clear to me	3.16 (6673)	1.05	3.50 (3080)	1.02	15.06	< 0.001

Table 3 Comparison of mentoring status across academic rank, Faculty Forward Engagement Surveys, 2011–14

	Full professor				
	No mentoring		Mentoring		Group comparison *t*-test
Survey Item	*n*	Mean (SD)	*n*	Mean (SD)	(significance)
Having a formal mentor at my institution is important to me	2658	3.13 (1.01)	486	4.02 (0.90)	19.73 (< 0.001)
Further professional advancement at this medical school is important to me	2520	3.82 (0.96)	460	4.18 (0.87)	8.00 (< 0.001)
I am satisfied with the pace of my professional advancement at this medical school	2568	3.60 (1.03)	469	4.02 (0.93)	9.00 (< 0.001)
How well I 'fit' in my department	2618	3.80 (1.06)	482	4.23 (0.83)	10.09 (< 0.001)
How well I 'fit' in my medical school	2615	3.55 (1.05)	481	4.02 (0.93)	9.85 (< 0.001)
My departmental colleagues are respectful of my efforts to balance work and home responsibilities	2624	3.76 (0.90)	482	4.12 (0.82)	8.78 (< 0.001)
The faculty in my department usually get along well together	2627	3.96 (0.88)	483	4.27 (0.78)	7.12 (< 0.001)
I feel appreciated by my departmental colleagues	2619	3.87 (0.95)	480	4.22 (0.82)	7.68 (< 0.001)
My role here is clear to me	2655	4.02 (1.04)	485	4.37 (0.84)	8.22 (< 0.001)
I am usually willing to give more than what is expected of me in my job	2652	4.61 (0.67)	489	4.70 (0.61)	2.96 (0.003)
My medical school's mission is clear	2624	3.63 (1.03)	485	3.96 (0.93)	7.11 (< 0.001)
It is clear how my day-to-day activities support the medical school's mission	2599	3.70 (1.02)	478	4.04 (0.89)	7.56 (< 0.001)
Teaching/Education: to be promoted in rank, what I must do in this mission area is clear to me	2054	3.71 (0.96)	401	4.04 (0.92)	6.63 (< 0.001)
Research/Scholarship: to be promoted in rank, what I must do in this mission area is clear to me	2028	3.77 (0.96)	398	4.11 (0.87)	6.95 (< 0.001)
Patient Care/Client Services: to be promoted in rank, what I must do in this mission area is clear to me	1754	3.62 (0.99)	348	4.04 (0.88)	7.85 (< 0.001)
Administration/Institutional Service: to be promoted in rank, what I must do in this mission area is clear to me	1740	3.42 (1.02)	276	3.90 (0.97)	8.72 (< 0.001)
All things considered, how satisfied or dissatisfied are you with your department as a place to work?	2617	3.83 (1.07)	481	4.32 (0.86)	11.23 (< 0.001)
All things considered, how satisfied or dissatisfied are you with your medical school as a place to work?	2612	3.61 (1.03)	481	3.93 (0.96)	6.73 (< 0.001)

about the importance of professional development. When asked to agree or disagree with a statement about whether further professional development at their institution was important, respondents who did not receive mentoring and did not believe it was important reported the lowest agreement. *Post-hoc* testing showed that there are significant differences (all items p = < 0.004) between each of these groups across the items analysed.

Mentoring Participation by Department

A number of differences also exist when analysing these variables by department. Across each depart-

Associate professor					Associate professor				
No mentoring		Mentoring		Group comparison *t*-test	No mentoring		Mentoring		Group comparison *t*-test
n	Mean (SD)	*n*	Mean (SD)	(significance)	*n*	Mean (SD)	*n*	Mean (SD)	(significance)
2133	3.52 (1.00)	695	4.20 (0.85)	17.42 (< 0.001)	2595	3.81 (0.97)	1937	4.39 (0.75)	22.54 (< 0.001)
2091	4.11 (0.88)	683	4.35 (0.76)	6.64 (< 0.001)	2552	4.17 (0.85)	1912	4.43 (0.68)	11.36 (< 0.001)
2091	3.18 (1.09)	685	3.68 (1.01)	11.24 (< 0.001)	2518	3.09 (1.08)	1871	3.61 (0.98)	16.56 (< 0.001)
2078	3.70 (1.06)	679	4.09 (0.90)	9.49 (< 0.001)	2562	3.70 (1.03)	1908	3.99 (0.87)	10.27 (< 0.001)
2071	3.44 (1.01)	680	3.81 (0.92)	8.73 (< 0.001)	2535	3.41 (0.98)	1903	3.77 (0.88)	12.55 (< 0.001)
2081	3.71 (0.96)	681	4.01 (0.89)	7.48 (< 0.001)	2562	3.76 (0.98)	1909	4.01 (0.85)	9.30 (< 0.001)
2084	3.90 (0.89)	680	4.16 (0.77)	7.32 (< 0.001)	2560	3.88 (0.91)	1910	4.13 (0.75)	10.07 (< 0.001)
2078	3.75 (0.98)	680	4.09 (0.83)	8.92 (< 0.001)	2558	3.73 (0.97)	1905	4.03 (0.83)	11.25 (< 0.001)
2110	3.79 (1.08)	694	4.14 (0.88)	8.62 (< 0.001)	2594	3.75 (1.05)	1935	4.02 (0.91)	9.16 (< 0.001)
2108	4.56 (0.68)	692	4.61 (0.68)	1.86 (0.063)	2590	4.50 (0.68)	1935	4.54 (0.65)	1.98 (0.047)
2037	3.60 (1.01)	684	3.84 (0.88)	5.95 (< 0.001)	2436	3.66 (0.94)	1827	3.87 (0.84)	7.17 (< 0.001)
2018	3.55 (1.01)	670	3.88 (0.88)	8.01 (< 0.001)	2397	3.51 (0.99)	1810	3.81 (0.87)	10.18 (< 0.001)
2027	3.33 (1.05)	668	3.83 (0.91)	11.84 (< 0.001)	2451	3.13 (1.10)	1840	3.62 (0.97)	15.47 (< 0.001)
1969	3.41 (1.01)	654	3.88 (0.89)	11.27 (< 0.001)	2377	3.20 (1.09)	1847	3.70 (0.95)	15.93 (< 0.001)
1775	3.30 (1.07)	574	3.73 (0.99)	8.83 (< 0.001)	2244	3.20 (1.09)	1629	3.63 (0.97)	12.98 (< 0.001)
1963	3.14 (1.05)	650	3.57 (1.02)	9.20 (< 0.001)	2338	2.99 (1.05)	1742	3.41 (1.00)	12.80 (< 0.001)
2069	3.64 (1.08)	675	4.14 (0.84)	12.37 (< 0.001)	2553	3.67 (1.02)	1898	4.03 (0.82)	12.91 (< 0.001)
2069	3.56 (0.95)	673	3.93 (0.86)	3.58 (< 0.001)	2535	3.54 (0.88)	1891	3.86 (0.77)	12.81 (< 0.001)

ment, more faculty members reported that mentoring was important to them compared with those who actually received mentoring. In some departments, such as anaesthesiology and obstetrics/gynaecology (OBGYN), less than half of faculty members who reported mentoring was important to them actually were in a formal mentoring relationship (Table 5). No apparent patterns are observed between size of department and percentage of faculty members who receive mentoring, nor between department size and whether or not mentoring is important to faculty members in that department.

Table 4 Comparison of accessibility and importance of mentoring, Faculty Forward Engagement Surveys, 2011–2014

	No. of respondents who receive mentoring			No. faculty respondents who do not receive mentoring, and do not agree that it is important			No. faculty respondents who do receive mentoring, but agree it is important			Group comparison			*Post hoc* testing	
Survey item	***n***	**Mean**	**SD**	***n***	**Mean**	**SD**	***n***	**Mean**	**SD**	**ANOVA F**	**d.f.**	**Significance**	**Significant relationship ***	**Significance**
Further professional advancement at this medical school is important me	3422	4.38	0.737	3672	3.72	0.974	3931	4.32	0.762	689.679	2	< 0.001	a,b,c	< 0.001,0.004, < 0.001
I am satisfied with the pace of my professional advancement at this medical school	3384	3.67	0.996	3699	3.48	1.013	3991	3.11	1.130	273.905	2	< 0.001	a,b,c	all sig. at < 0.001
How well I 'fit' in my department	3455	4.04	0.877	3786	3.86	1.004	3932	3.61	1.070	179.605	2	< 0.001	a,b,c	all sig. at < 0.001
How well I 'fit' in my medical school	3446	3.81	0.907	3770	3.56	0.991	3910	3.38	1.022	174.285	2	< 0.001	a,b,c	all sig. at < 0.001
My departmental colleagues are respectful of my efforts to balance work and home responsibilities	3454	4.03	0.853	3790	3.86	0.866	3940	3.64	0.999	168.601	2	< 0.001	a,b,c	all sig. at < 0.001
The faculty in my department usually get along well together	3454	4.14	0.764	3794	4.00	0.835	3938	3.83	0.930	131.859	2	< 0.001	a,b,c	all sig. at < 0.001
I feel appreciated by my departmental colleagues	3446	4.06	0.831	3782	3.90	0.909	3934	3.66	1.006	176.532	2	< 0.001	a,b,c	all sig. at < 0.001
All things considered, how satisfied or dissatisfied are you with your department as a place to work?	3437	4.09	0.833	3769	3.88	1.014	3920	3.56	1.079	277.568	2	< 0.001	a,b,c	all sig. at < 0.001
All things considered, how satisfied or dissatisfied are you with your medical school as a place to work?	3424	3.89	0.815	3756	3.65	0.964	3908	3.50	0.930	170.987	2	< 0.001	a,b,c	all sig. at < 0.001
My role here is clear to me	3507	4.09	0.905	3838	4.05	0.985	3977	3.68	1.100	201.181	2	< 0.001	b,c	< 0.001, < 0.001
My medical school's mission is clear	3354	3.89	0.856	3698	3.69	0.984	3806	3.60	0.993	84.609	2	< 0.001	a,b,c	all sig. at < 0.001
It is clear how my day-to-day activities support the medical school's mission	3311	3.86	0.875	3673	3.71	0.974	3753	3.49	1.026	136.066	2	< 0.001	a,b,c	all sig. at < 0.001
Teaching/Education: to be promoted in rank, what I must do in this mission area is clear to me	3234	3.70	0.965	3205	3.48	1.000	3670	3.25	1.115	162.675	2	< 0.001	a,b,c	all sig. at < 0.001
Research/Scholarship: to be promoted in rank, what I must do in this mission area is clear to me	3229	3.78	0.941	3108	3.57	0.981	3614	3.31	1.091	185.280	2	< 0.001	a,b,c	all sig. at < 0.001

Table 4 (Continued)

Survey item	No. of respondents who receive mentoring			No. faculty respondents who do not receive mentoring, and do not agree that it is important			No. faculty respondents who do receive mentoring, but agree it is important			Group comparison			*Post hoc* testing	
	n	Mean	SD	*n*	Mean	SD	*n*	Mean	SD	ANOVA F	d.f.	Significance	Significant relationship *	Significance
Patient Care/Client Services: to be promoted in rank, what I must do in this mission area is clear to me	2839	3.69	0.975	2811	3.46	1.014	3276	3.25	1.110	137.880	2	< 0.001	a,b,c	all sig. at < 0.001
Administration/Institutional Service: to be promoted in rank, what I must do in this mission area is clear to me	3080	3.50	1.015	3092	3.32	0.996	3559	3.03	1.082	172.550	2	< 0.001	a,b,c	all sig. at < 0.001

a = receives mentoring versus does not receive mentoring and does not agree it is important; b = receives mentoring versus does not receive mentoring but agrees it is important; c = does not receive mentoring and does not agree it is important versus does not receive mentoring but agrees it is important; *Bonferroni *post hoc* testing used.

DISCUSSION

The purpose of our study was to provide a large-scale, multi-institutional analysis of the presence of formal mentoring relationships, in particular among clinical faculty members, and to analyse relationships between mentorship status and aspects of employee engagement, including satisfaction with department and institutional workplace. The results illustrate how formal mentoring is related to many facets of faculty members' perception of their institution. We confirmed our hypothesis that academic clinical faculty members currently in formal mentoring relationships experience enhanced employee engagement and satisfaction with their department and institution. Specifically, the findings highlight the benefits of formal mentoring relationships for clinical faculty members, such as greater satisfaction with one's department and institution. The results also demonstrate a clear pattern of higher perceived satisfaction, greater clarity regarding the institutional mission, and perceived alignment of mission and day-to-day activities, across faculty ranks. Not surprisingly, faculty members receiving mentoring had the most positive perceptions (the composition of respondents who received mentoring was as follows: 15.6% full professors, 24.8% associate professors and 42.8% assistant professors.); faculty members valuing but not receiving formal mentoring had the lowest. That roughly a third of assistant, associate and full professors felt that mentoring was important to them, yet reported not receiving it, suggests that such faculty members are aware both of the potential benefits of mentoring and of the gap between their current and desired work environments. For clinical faculty members, who have and continue to face great change in their work (e.g. changing health care delivery system, changing educational pedagogies, and increased clinical, research and educational demands), formal mentoring may be of particular relevance to facilitate satisfaction and engagement.

Additionally, the consistency of these findings across the academic continuum (from junior to senior faculty members) suggests that the mentoring relationship may evolve but not disappear throughout faculty members' careers. To continue to promote mentoring relationships, medical schools might consider creating more formal mentoring opportunities for faculty members at all ranks throughout the span of their careers. Future research could assess whether faculty members

Table 5 Comparison of those receiving mentoring and those who believe mentoring is important by department; Faculty Forward Engagement Survey, 2011–2014

Department	Total respondents	Receiving mentoring *n* %	Total respondents	Strongly agree or agree mentoring is important *n* %
Emergency medicine	409	133 (33)	408	276 (68)
Psychiatry	713	248 (35)	710	461 (65)
Paediatric	1780	597 (34)	1768	1143 (65)
Medicine	2602	823 (32)	2586	1666 (64)
Physical medicine and rehabilitation	103	34 (33)	103	66 (64)
Anaesthesiology	698	200 (29)	689	438 (64)
Neurosurgery	177	64 (36)	179	113 (63)
Family medicine	565	195 (35)	561	350 (62)
Obstetrics and gynaecology	508	116 (23)	508	316 (62)
Dermatology	109	42 (39)	108	67 (62)
Radiation oncology	191	60 (31)	189	117 (62)
Other clinical departments	230	62 (27)	227	139 (61)
Surgery	871	246 (28)	863	523 (61)
Neurology	443	128 (29)	437	263 (60)
Otolaryngology	231	80 (35)	231	137 (59)
Radiology	685	196 (29)	683	383 (56)
Pathology	606	190 (31)	605	324 (54)
Ophthalmology	269	54 (20)	267	132 (49)
Orthopaedic surgery	277	61 (22)	275	130 (47)
Total	11 467	3529 (31)	11 397	7044 (62)

This table reflects only those who said 'Yes' or 'No' to the question about receiving mentoring

would be more receptive and responsive to mentoring efforts targeting their individual needs as full professors, as opposed to traditional mentoring models that are often designed to assist early-career faculty members. Future research could also assess the specific ways in which formal mentoring relationships may facilitate faculty members' satisfaction and engagement by talking with individual faculty members either through interviews or focus groups.

The results of this multi-institutional study are consistent with social theories of organisational support: that if employees perceive that the organisation is committed to them, they will feel more compelled to contribute to organisational goals and to remain with the organisation.[26] Retention is important for an academic medical centre to meet its responsibilities and maintain financial stability.[5] Although securing a sufficient number of available and appropriate senior faculty staff to mentor all junior and mid-career faculty members is challenging,[3] efforts to afford senior faculty members opportunities to mentor junior colleagues may improve overall job satisfaction for both parties. Importantly, associations in this cross-sectional observational study may suggest conclusions about the causal relationships between mentoring, career perceptions and retention. Further research is needed in this area.

No patterns emerged from our analyses based on department. Rather, there is a great range in perceptions of the importance of mentoring and how many faculty members have a formal mentor by department. Given this finding, one might hypothesise that occurrence of mentoring and perceived importance of mentoring might be influenced by institutional resources and the local or national culture within departments and specialties. Although

this study cannot make conclusions on the differences in mentoring by department, we suggest this is another area of future research.

It is important to understand the findings of this study in context and to understand the study's limitations. First, mentoring is a complex and context-dependent concept, and different terms have been used to describe it without much clear demarcation among them.[27,28] The survey's definition of mentoring as a 'formal agreement with a colleague to provide ongoing career guidance and advice' acknowledges core elements of mentoring, but might not account for the impact of more informal, personal interactions between faculty members. That said, we focus on formal mentoring as a way of setting parameters for a specific type of mentoring in order to facilitate understanding. We suggest continued research on more nuanced types of mentoring to understand whether some are more effective than others. Second, the spectrum of support provided to faculty members in academic medicine by senior colleagues ranges from providing informal, ad-hoc advice to coaching, mentoring and sponsoring. Our survey did not distinguish between these types of support so we cannot comment on how they impact the engagement and retention of faculty members. Third, although the survey response rate was higher than that in other published studies of physician satisfaction and engagement (ranging from 30 to 65%),[29,30] response bias may exist for findings by gender, race and rank, as women and majority race faculty were overrepresented in the respondent pool and rank data were not collected for this population. Fourth, this study focuses only on faculty members in USA medical schools. Based on the precedent set by other studies on mentoring, we feel that the results are generalisable to all medical faculty members, but future research based in non-USA medical schools must be undertaken to be sure and to understand the differences that may emerge. Finally, although this study looks at relationships between mentoring and satisfaction and engagement, it does not account for other institutional variables that may also be contributing to a faculty member's perceptions of his or her institution (e.g. other supports that may be in place for professional development and growth). Further, as evidenced by a survey design of multiple dimensions, many factors comprise one's engagement. Additional research is needed to understand how much of a faculty member's engagement is accounted for or driven by formal mentoring and its impact on different faculty subgroups such as women and minorities.

In summary, this large-scale study (both in terms of institutions represented and faculty respondents) is important because it demonstrates that formal mentoring is associated with variables of importance to academic medical centres and their clinical faculty members. Further, our study contributes to the growing literature supporting the importance of mentoring to faculty members' satisfaction and engagement in academic medicine. These results may help in understanding how formal mentoring outcomes might influence and set the stage for new areas of investigation. They also serve to support the case for institutional support of mentoring programmes and inform organisational leaders on the types of goals that mentoring initiatives may target as they have the greatest potential for success. Future work might focus on the benefits of mentoring for specific groups of clinical faculty members, such as medical educators; for example, to see how mentoring may benefit them relative to faculty members whose predominant activities are in clinical work, research or community engagement. Medical schools may require different strategies in their mentoring efforts, and future research might provide insight into tailoring mentoring programmes as well as highlight effective mentoring practices, such as team and distance mentoring.

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