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Mentorship in Academic General Internal Medicine

Results of a Survey of Mentors

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BACKGROUND: Effective mentorship is crucial to career development. Strategies to improve the availability of mentors include mentoring multiple mentees at once, compensating mentors, comentoring, and long-distance mentoring.

OBJECTIVE: To describe current trends in mentorship in general Internal Medicine (GIM).

METHODS: We conducted a national cross-sectional web-based survey of GIM mentors, GIM fellowship directors, and GIM National Institutes of Health K24 grant awardees to capture their experiences with mentoring, including compensation for mentorship, multiple mentees, comentorship, and long-distance mentorship. We compared experiences by mentorship funding status, faculty type, academic rank, and sex.

RESULTS: We collected data from 111 mentors (77% male, 54% full professors, and 68% clinician-investigators). Fifty-two (47%) received funding for mentorship. Mentors supervised a median (25th percentile, 75th percentile) of 5 (3, 8) mentees each, and would be willing to supervise a maximum of 6 (4, 10) mentees at once. Compared with mentors without funding, mentors with funding had more current mentees (mean of 8.3 vs 5.1, respectively; $P<.001$). Full professors had more current mentees than associate or assistant professors (8.0 vs 5.9 vs 2.4, respectively; $P=.005$). Ninety-four (85%) mentors had experience comentoring, and two-thirds of mentors had experience mentoring from a distance. Although most mentors found long-distance mentoring to be less demanding, most also said it is less effective for the mentee and is personally less fulfilling.

CONCLUSIONS: Mentors in GIM appear to be close to their mentorship capacity, and the majority lack funding for mentorship. Comentoring and long-distance mentoring are common.

KEY WORDS: mentors; education; professional; internal medicine; faculty; medical.
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E ffective mentorship is crucial to career success in academic medicine.[1–5] Working with a mentor can help a trainee or junior faculty member learn the "rules" of academia, develop thinking and writing skills, and become an independent investigator.[6] New clinician-investigators who had influential mentors during their primary care fellowships are more likely to publish 1 or more papers per year and more likely to secure funding as principal investigators early in their careers.[7] The benefits of mentorship have also been noted among other faculty in academic medicine, including clinician-educators and administrators.[8–11]

Traditionally, mentorship has been typified by a one-to-one mentor-mentee relationship that begins early in the mentee's career and continues as the mentee advances in his or her career within a single institution.[12] Over time, however, as careers in general—and academic careers in particular—have become characterized by mobility, flexibility, and specific project work, the concept of mentorship has broadened to include relationships between multiple mentors and mentees and relationships that span distance and institutions.[12,13] In addition, competing demands for faculty members' time can limit their availability to mentees. Unless faculty receive explicit funding and protected time for mentorship activities, it can be difficult to justify the time cost of mentorship.[3]

Despite the recognition of the importance of mentorship for the career development of new faculty, little is known about the current state of mentorship activities for faculty in general Internal Medicine (GIM). Some investigators have described factors associated with satisfaction with mentorship from the mentee's perspective,[14,15] but less is known about satisfaction with mentorship from the mentor's perspective. In addition, although various authors have promulgated suggestions to potential mentors in academic medicine[16–20]—describing innovative formal mentorship programs[21–25] and promoting strategies such as mentoring multiple mentees at one time, sharing mentorship duties for a single mentee with other mentors (comentorship), and mentoring people from other institutions (long-distance mentorship)—mentors have not been systematically surveyed about the scope of their mentoring activities.

We conducted a survey of leaders in GIM who have demonstrated an interest in mentoring in order to describe the general "lay of the land" of mentorship in the field. We analyzed mentor-to-mentee ratios, availability of funding for mentoring activities, and the use of comentoring and long-distance mentoring among the mentors surveyed. We also looked at mentors' perceptions about social/professional boundaries with mentees.

METHODS

Participants and Data Collection

We identified leaders in GIM with an interest in mentorship from 3 sources: (1) a list of mentors for the One-on-One Mentoring Program at the 2004 Society of General Internal Medicine (SGIM) Annual Meeting (mostly senior and mid-level SGIM members selected to be broadly representative of career paths in research, education, administration, policy, and clinical care; $N=104$), (2) a list of fellowship program directors in GIM obtained from the SGIM website ($N=54$), and (3) a list of National Institutes of Health (NIH) K24 awardees cross-matched against the SGIM membership directory ($N=15$). The K24 Award is a Midcareer Investigator Award in Patient-Oriented Research, which provides support for mentoring junior clinical investigators.[26] Many potential survey respondents fit into more than one of these groups (total potential $N=152$). These mentors were invited by e-mail in May 2004 to take a web-based survey about mentorship, and nonresponders received up to 2 e-mail reminders. We retrieved the data from the web site for analysis, stripped of any identifying information. The Institutional Review Boards at all of the authors' institutions (University of Cincinnati, University of Chicago, University of California at Los Angeles, and Harvard University) approved the study.

Survey Instrument

Respondents were asked to use the following definition of a mentor: "A mentor is a person who helps a more junior person develop professionally through a combination of advising on projects, skills development, creation of opportunities, and personal growth in an intensive manner over an extended period of time."[13] We developed a 25-item survey, with questions based on mentorship issues discussed in the literature and on the authors' experience. We tested the questions in a pilot study of GIM mentors in April 2003. The final survey contained sections about funding for mentorship, multiple mentees, co-mentorship, long-distance mentorship, and social/professional boundaries (Appendix). Regarding funding for mentorship, we asked whether the mentors had ever received such funding, the percentage of their time that was supported for mentorship, and the sources of their mentorship funding. We asked "yes/no" questions about experience with comentoring and long-distance mentoring, along with questions using 5-point Likert scales about fulfillment received from such relationships and demands imposed by the relationships. Free text was allowed for answers to questions about number of current mentees, maximum number of mentees, criteria used to decide on number of mentees, and barriers/facilitators to comentoring and long-distance mentoring. We also collected data on the mentors' sex, faculty-type (clinician-investigator, clinician-educator, other), and academic rank.

Statistical Analyses

We performed analyses by using the SAS system for Windows, version 8 (SAS Institute, Cary, NC). Descriptive statistics included means, medians, interquartile ranges, and proportions. We combined clinician-educators and "other" faculty types as "nonclinician-investigators" for the analyses. We compared means by using the Wilcoxon rank sum test. We compared proportions by using χ^2 or Fisher's Exact tests. Correlations were tested by using Pearson correlation coefficients. To explore differences in perceptions about personal–professional boundaries, we performed multiple logistic regression analysis. Answers to open-ended questions were coded by theme and grouped into descriptive categories by consensus of the authors. We classified criteria for determining how many mentees a mentor was willing to take on into "mentor-specific criteria" and "mentee-specific criteria."

RESULTS

Of the 152 people invited to participate in the survey, 4 (3%) declined to participate because they did not think that the survey was applicable to them and 5 (3%) were unable either to receive the e-mailed invitation or complete the survey because of technical issues. One hundred eleven recipients completed the survey, for an effective response rate of 78% (Table 1). Men were more likely to respond than women: overall, 86 (80%) invited male subjects responded versus 25 (58%) invited female subjects ($P<.005$).

Mentor Demographics

A majority of respondents spent at least a portion of their time as researchers (clinician-investigators). Nonclinician-investigators were mostly clinician-educators or full-time administrators. Males were more likely than females to be clinician-investigators (73% vs 52%; $P=.04$) and full professors (58% vs 38%; $P=.10$).

Mentorship Funding

A little less than half of the respondents received funding specifically for mentoring. Clinician-investigators were significantly more likely than nonclinician-investigators to have specific funding for mentorship ($P=.003$; Fig. 1). Although 50% of males received mentorship funding, compared with 36% of females, this difference was not statistically significant ($P=.26$). Likewise, the difference in funding among full professors, associate professors, and assistant professors was not statistically significant ($P=.16$). The percentage of respondents' time supported for mentorship activities ranged from 0% to 60%. Among those with some funding for mentorship, the median percentage of supported time was 15%.

Grants were the most commonly reported source of funding: 43 (39%) respondents received grants to support mentor-

Table 1. Characteristics of Subjects

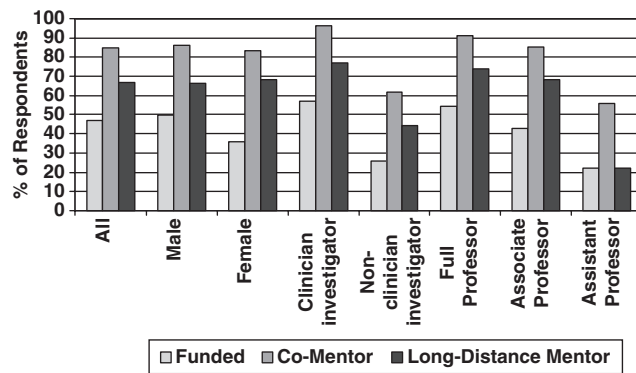|	
Sex, N (%)	
Male	86 (77)
Rank, N (%)	
Assistant professor	9 (8)
Associate professor	42 (38)
Professor	59 (54)
Faculty type, N (%)	
Clinician-investigator	76 (68)
Clinician-educator	30 (28)
Other (Administrator only)	4 (4)
Funding for mentorship, N (%)*	52 (47)
Grant	43 (39)
Institutional/departmental	15 (14)
Teaching/administrative	7 (6)

Categories not mutually exclusive.

FIGURE 1. Funding, comentoring, and long-distance mentoring experience by mentor characteristics. Mentor characteristics are listed along the *x*-axis. Light gray bars represent the percentage of respondents with each characteristic with funding, dark gray bars represent the percentage of respondents with each characteristic with comentoring experience, and black bars represent the percentage of respondents with each characteristic with long-distance mentoring experience.

ship. Most of those grants were federal, sponsored by the NIH (K, R, or center mechanism), Health Resources and Services Administration, or Veterans Affairs Health Services Research and Development Service. Three (3%) respondents had funding from the Robert Wood Johnson Foundation. Only 19 (17%) respondents received institutional support or teaching and administrative support for mentorship.

Multiple Mentees

The mean (SD) number of current mentees of the respondents was 6.7 (6.7), with a range of 0 to 50 and a median (25th percentile, 75th percentile) of 5 (3, 8). Mentors were willing to take on only a slightly higher number of mentees than they were currently mentoring (mean [SD] maximum number of mentees: 7.7 [7.2]; range: 0 to 50; median [25th, 75th percentiles]: 6 [4–10]). The correlation coefficient between one's current number of mentees and their maximum number of mentees was 0.92 ($P < .0001$). Fourteen (64%) females and 36 (44%) males ($P = .15$) reported that their current number of mentees was greater than or equal to the maximum number of mentees they were willing to supervise, indicating that they were at or above their mentorship capacity.

Full professors averaged more current mentees than did associate or assistant professors ($P = .005$; Fig. 2). Respondents receiving funding for mentorship reported greater mean
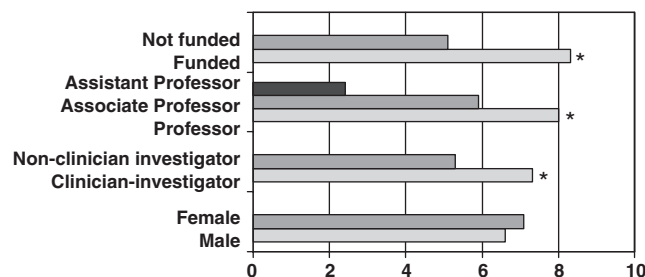

FIGURE 2. Number of current mentees by mentor characteristics. Mentor characteristics are listed along the *y*-axis. Bars represent the mean number of current mentees for mentors with each characteristic. *$P < .05$.

numbers of current mentees than did those without funding ($P < .001$). The current number of mentees did not vary significantly by sex of the mentor, but clinician-investigators, compared with nonclinician-investigators, averaged more current mentees ($P < .001$).

Mentors listed many different criteria for determining the maximum number of mentees that they would be willing to take on at one time. The most commonly mentioned mentor-specific criteria included their own availability/workload and job position (e.g., some division directors said they mentored everyone in their divisions). Some respondents said they could supervise more mentees in a secondary mentor role than as a primary mentor, and some respondents said they chose their maximum based on experience, or they accepted new mentees until they felt "maxed out." Accepting additional mentees depended on mentee-specific characteristics, such as needs, interests, training levels, career potential/motivation, personal compatibility with the mentor, and professional compatibility with the mentor. A few mentors also stated that their maximum number of mentees was influenced by the relative availability of other mentors at their institutions.

Comentoring

Ninety-four (85%) respondents had experience comentoring. Comentoring was more common among clinician-investigators than among nonclinician-investigators ($P < .001$), among full professors than among associate or assistant professors ($P = .01$), and among mentors with funding for mentorship activities than among those without funding ($P = .02$; Fig. 1). Mentors with co-mentoring experience averaged more current mentees (7.3) than those without such experience (3.6; $P < .001$). Eighty-three (87%) respondents strongly agreed or agreed that when they have comentored someone, the mentee received a better experience than the respondent could have provided as a sole mentor. Additionally, 58 (61%) respondents agreed that comentoring is more fulfilling and less demanding than being a sole mentor.

Barriers to comentoring included unclear expectations, disagreement/competition between mentors, a need for more communication, inefficiency, less fulfillment, or a less personal relationship. Not surprisingly, facilitators to comentoring included clear roles/goals, a good relationship between mentors, clear designation of primary versus secondary mentors, and complementary expertise between mentors.

Long-Distance Mentoring

Long-distance mentoring (i.e., mentoring someone in another city, state, or country) was also common among our respondents (67% prevalence). Clinician-investigators were more likely to report long-distance mentoring experience than nonclinician-investigators ($P < .001$), and full professors were more likely to have had long-distance mentoring experience than associate or assistant professors ($P = .008$; Fig. 1). Mentors with long-distance mentoring experience reported having more current mentees on average than did mentors without such experience (8.0 vs 4.0, respectively; $P < .001$). A majority (79%) of mentors who had experience with long-distance mentoring felt that the long-distance mentoring had not been as effective for mentees as onsite mentoring. Although most (62%) agreed that long-distance mentoring is less demanding, 41 (55%)

mentors found long-distance mentoring relationships to be personally less fulfilling.

Shortcomings of long-distance mentoring included lack of "face time," lack of impromptu meetings, lack of direct observation, and problems with e-mail or telephone as a means of communication. Conversely, facilitators to long-distance mentoring included having established a relationship locally prior to the long-distance relationship, and having occasional "face time" (e.g., at national meetings), mutually clear expectations, and a productive mentee.

Boundaries and Gender Differences in Relationships with Mentees

When asked about the distribution of time spent with mentees, 57 (52%) mentors described the approximate ratio of time that they spend with mentees on professional versus nonwork activities as 80:20. Eighty-three percent of women said that at least 20% of meeting time is social, compared with 60% of men (P=.03). Women and men also differed in their opinions about whether gender congruity between mentor and mentee affects social/professional boundaries: 50% of women said that it does, while only 12% of men said it does (P<.0001).

Controlling for differences in academic rank and faculty type did not substantially alter either of the gender effects concerning perceptions about personal–professional boundaries or the tendency to spend a fifth or more of mentorship time on nonprofessional issues. Furthermore, while there were also independent effects of academic rank and faculty type on time allocation, with professors and clinician-educators both more likely to spend mentorship time on nonprofessional issues, neither rank nor faculty type had independent effects on the perceptions about boundaries.

DISCUSSION

By surveying a group of GIM mentors, we found that several strategies are being used to improve access to effective mentorship in this field. Most of our respondents mentor multiple mentees at once, comentor with colleagues, and mentor people from other institutions. Conversely, fewer than half of the respondents receive funding specifically for mentoring.

In the definition of a mentor at the beginning of our survey, we stressed the intensity and duration of the mentoring relationship to distinguish mentoring from less intensive advising. Based on that definition, mentors reported a wide range both in the number of their current mentees (0 to 50) and in the maximum number of mentees they say they are willing to supervise (0 to 50). Guidelines for the optimal number of mentees are lacking.

The current and maximum numbers of mentees were influenced by mentors' academic rank, faculty type, and mentorship funding, but not by mentors' sex. It is unclear why numbers of mentees varied significantly between the clinician-investigators versus the clinician-educators and other faculty surveyed, but this finding is consistent with a previous study of physician mentees, which found that clinician-scientists were more likely to be mentored than clinician-educators.[15] The finding that funded mentors had more mentees than their nonfunded colleagues may indicate that funding allows a mentor to take on more mentees. To wit, the most common limitation to accepting more mentees seemed to be the mentor's

workload/availability, which may be influenced by mentorship funding. Conversely, mentors with more mentees may be more likely to seek, and receive, funding. Similarly, comentoring and long-distance mentoring may allow a mentor to accept more mentees, or mentors with more mentees may be more likely to have less time-intensive relationships, such as comentoring and long-distance mentoring, included in their mentee counts.

Mentors distinguished between the time and effort required to serve as a mentee's primary mentor as opposed to as their secondary mentor. We did not ask questions specifically about primary versus secondary mentorship roles in this study, but this should be explored further in future studies. Long-distance mentoring relationships that began as local relationships and continued when a mentee moved to another institution (e.g., after fellowship) seemed to be viewed more positively than mentoring relationships that were initiated at a distance. When optimal conditions exist for a long-distance mentoring relationship, such relationships can greatly expand the pool of potential mentors, especially for junior faculty in small divisions.

We were surprised that fewer than half of respondents have funding for mentorship, despite the fact that we specifically targeted K24 award recipients. Even fewer respondents had institutional/departmental or teaching/administrative support for mentoring than external grant support for mentoring, despite the fact that institutions often encourage or even require mentoring as part of their faculty development programs. Again, lack of mentoring support may limit the number of new mentees that senior faculty can supervise if senior faculty have trouble justifying the time cost of mentorship to their institutions. Conversely, despite not being explicitly funded for it, senior faculty may be willing to mentor if they consider mentoring to be an important part of their roles as senior leaders in the academic community. Mentors also stand to benefit academically as coauthors on papers or coinvestigators on grants written by their mentees.

Mentors are distinguished in the literature from role models or advisors by the breadth and depth of the symbiotic mentor–mentee relationship. An effective mentor provides a mentee not only with teaching and role modeling, but also with professional and personal guidance, sponsorship, and socialization into a profession. We found that female mentors spent more time developing social relationships than did male mentors, and that female mentors felt that boundaries with mentees were more likely to be influenced by mentee gender than did male mentors. Such issues may affect satisfaction with mentoring relationships and bear further study. Mentors also stressed that effective mentorship in various situations depends on good communication, clear goals, and mutual interests.

Our study has several limitations. It is likely that our sampling methods led to oversampling clinician-investigators, thereby limiting the conclusions we can make about differences in mentoring among clinician-investigators, clinician-educators, and others. We also purposely targeted all NIH K24 award recipients in GIM, which may have affected the generalizability of findings about funding for mentorship. The lower response rate among female mentors than among males may limit our ability to detect sex differences. As this was a cross-sectional study, we cannot use these data to interpret cause-and-effect relationships. Finally, the outliers in answers regarding numbers of current and maximum mentees suggest

that, despite our explicit definition of "mentor," some of our respondents may have interpreted mentoring relationships differently from others.

In conclusion, mentors in GIM appear to be close to their mentorship capacity. The majority of their mentorship efforts are unfunded. Mentoring experiences appear to differ between clinician-investigators and nonclinician-investigators and between men and women, and as would be expected, full professors do more mentoring than less senior faculty. Short of greatly expanding the pool of primary onsite mentors and the availability of funds to mentor, comentoring, and—in certain circumstances—long-distance mentoring, may be effective ways to enhance mentoring.

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