

Medical Student Interest in Flexible Residency Training Options

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BACKGROUND AND OBJECTIVES: Medical residents continue to experience high rates of burnout during residency training even after implementation of the 2003 Accreditation Council for Graduate Medical Education duty-hour restrictions. The purpose of this study is to determine medical student interest in flexible residency training options.

METHODS: Researchers developed an 11-question survey for second through fourth-year medical students. The populations surveyed included medical students who were: (1) attending the 2015 American Academy of Family Physicians National Conference, the 2015 Family Medicine Midwest Conference, and (2) enrolled at University of Chicago Pritzker School of Medicine, University of Illinois College of Medicine at Chicago, Drexel University College of Medicine, and Case Western Reserve University School of Medicine.

RESULTS: The survey was completed by 789 medical students. Over half of medical students surveyed indicated that they would be interested in working part-time during some portion of their residency training (51%), and that access to part-time training options would increase their likelihood of applying to a particular residency program (52%). When given the option of three residency training schedules of varying lengths, 41% of male students and 60% of female students chose a 60-hour workweek, even when that meant extending the residency length by 33% and reducing their yearly salary to \$39,000.

CONCLUSIONS: There is considerable interest among medical students in access to part-time residency training options and reduced-hour residency programs. This level of interest indicates that offering flexible training options could be an effective recruitment tool for residency programs and could improve students' perception of their work-life balance during residency.

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Methods

To assess medical students' interest in flexible residency training options we developed an 11-item survey using a combination of expert opinion, literature review, and a pilot study at the University of Chicago Pritzker School of Medicine. We designed one question based on an instrument utilized in a prior study with similar intent at the Medical College of Pennsylvania in 1976.⁷ The survey questions included in this analysis are listed in Table 1. This study received an exemption from the University of Chicago Institutional Review Board. We surveyed second through fourth-year medical students at (1) the 2015 American Academy of Family Physicians (AAFP) National Conference of Family Medicine Residents and Medical Students, the 2015 Family Medicine Midwest Conference, and (2) the University of Chicago Pritzker School of Medicine, University of Illinois College of Medicine at Chicago, Drexel University College of Medicine, and Case Western Reserve University School of Medicine.

Data was collected between July 2015 and February 2016. Surveys were printed and an identical

Today's medical students have different priorities and expectations for work-life balance than previous generations.^{1,2} Stress and long work hours during residency training often lead to burnout, depression, suboptimal patient care, and an inferior educational experience.³⁻⁵ Studies of the few programs

offering part-time options show that residents have less burnout, better faculty evaluations, and equivalent board pass rates compared to full-time colleagues.⁶ We hypothesized that the majority of medical students would desire flexible residency training schedules.

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Table 1: Survey Questions Included in Analysis

Outcome Measure	Response Options
Would you be interested in working part-time during some portion of your residency training if the option was available at your program of choice?	Definitely; Probably; Probably Not; Definitely Not
Which version of part-time would you prefer?	40 Hours per Week; 6 Months per Year; Not Interested
If you knew of a program that offered residents the option to work part-time, would that increase your likelihood of applying to that program?	Definitely; Probably; Probably Not; Definitely Not
What type of specialty are you most likely to choose?	Primary care; Medical specialty; General surgery; Surgical specialty
Year in school?	MS1; MS2; MS3; MS4; Research/PhD
What is your #1 reason for interest in part-time residency training options?	Not interested; Less stress; More time to sleep; Research; More time with children/have children earlier; Job satisfaction; Hobbies and recreation; Travel/work internationally; Improved physical/mental health; Time to study more; Personal/family illness; More time with family and friends; Other degrees (MPH, MBA, etc)
Which type of program would you choose? (Assume all else is equal and all residents in a program have the same schedule)	40 hours per week for 2 times the traditional number of years (\$26,000 per year); 60 hours per week for 1.33 times the traditional number of years (\$39,000 per year); 80 hours per week for the traditional number of years (\$52,000 per year)
Gender	Male; Female; Other

electronic version utilized SurveyMonkey. No incentives were offered for survey completion. Distribution methods are explained in Table 2. We analyzed data using Stata 14 (College Station, TX) and used two sample tests of proportions and chi-square tests to compare preference for flexible training by survey subgroup, gender, specialty choice, and medical school year.

Results

Participants

The survey was completed by 789 medical students; 227 students at the 2015 AAFP National Conference (19% response rate),⁸ 61 students at the 2015 Family Medicine Midwest Conference (53% response rate), 182 students at the University of Chicago Pritzker School of Medicine (67% response rate), 137 students at University of Illinois College of Medicine at Chicago (13% response rate), 95 students at Drexel University College of Medicine (12% response rate), and 87 students at Case Western Reserve University School of Medicine (14% response rate). There is a large difference between the response

rates at the University of Chicago Pritzker School of Medicine and the other three medical schools surveyed, however we found no statistically significant difference between student responses regarding interest in part-time options ($P=.188$) or reduced-hour residency schedules ($P=.389$). Table 3 presents respondents' demographic information.

Interest in Access to Part-time Training Options

The majority of survey respondents (51%, $n=406$) said they were "definitely" or "probably" interested in working part-time during a portion of residency training. The most commonly cited reason for interest in part-time residency training options was "more time with children/have children earlier." When given the option of either working 40 hours per week or 6 months per year, 69% ($n=423$) of students who expressed interest in part-time options preferred the 40-hour workweek. Over half (52%; $n=408$) of students reported that they would be more likely to apply to a residency program that offered part-time training options.

Interest in part-time training is significantly higher among women than men, even controlling for potential confounders (Table 4). In bivariate analysis, specialty choice was significantly associated with interest in part-time training options (primary care: 58%, medical specialty: 48%, surgery: 43%; $P=.005$), however controlling for gender, specialty choice was no longer significant.

Selection of Program Type

As an alternative to part-time options, we described three schedule variations and told students that all residents within the program would have the same schedule. Schedules were as follows:

- 40 hours per week for twice the residency length (salary=\$26,000 per year)
- 60 hours per week for 1.33 times the residency length (salary=\$39,000 per year)
- 80 hours per week for the traditional residency length (salary=\$52,000 per year).

Table 2: Methods of Survey Distribution for Each Medical School and Family Medicine Conference, 2015-2016

	Medical Schools				Family Medicine Conferences	
	University of Illinois Chicago (n=137)	University of Chicago (n=182)	Drexel University (n=95)	Case Western Reserve University (n=87)	AAFP National Conference (n=227)	Family Medicine Midwest Conference (n=61)
Electronic survey distribution	Link to electronic version sent via email October, 2015	Link to electronic version sent via email July, 2015; 2 reminders sent during 2 weeks after survey released	Link to electronic version sent via email September, 2015	Link to electronic version sent via email September, 2015		Link to electronic version sent to the 125 medical student scholarship recipients via email October 2, 2015; reminder email sent October 20, 2015
Paper survey distribution	Paper versions left in student common areas November, 2015; announcement about survey and paper copies available at class meeting in February, 2016	Paper versions left in student common areas July-August 2015			Paper surveys distributed to students and left in registration area during conference (July-August 2015)	Paper versions distributed at FMIG Leader's dinner at conference on October 10, 2015

Abbreviations: AAFP: American Academy of Family Physicians; FMIG: Family medicine interest group

Table 3: Demographic Information of Survey Respondents (n=789)

	Medical Schools				Family Medicine Conferences	
	University of Illinois Chicago (n=137)	University of Chicago (n=182)	Drexel University (n=95)	Case Western Reserve University (n=87)	AAFP National Conference (n=227)	Family Medicine Midwest Conference (n=61)
Gender						
Male	64	82	41	36	59	17
Female	67	91	52	47	148	43
Year in School						
MS2	59	71	30	37	38	26
MS3	65	50	30	17	28	17
MS4	9	47	32	22	152	16
Research year	1	11	1	7	7	1
Specialty Choice						
Primary care	36	25	19	7	219	52
Medical specialty	59	100	44	43	5	6
Surgery	25	51	30	33	1	2

The demographics of the survey respondents divided by survey population. The total number of respondents in each category varies due to differences in response rates for specific items. The specialty categories "general surgery" and "surgical specialty" were combined into the category "surgery" for analysis.

Table 4: Medical Student Interest in Part-time Training Options and Reduced-Hour Residency Programs

	Interested in Part-time Training Options (No. Responding "Definitely" or "Probably")			Interested in Reduced Hour Residency Programs (No. Selecting 40 or 60-hour Workweek)		
	n (%)	P(χ^2)	aOR (95% CI)	n (%)	P(χ^2)	aOR (95% CI)
Survey Subgroup						
Family medicine conferences (n=288)	153(53)	0.447	-	165(64)	0.031	1.54 (0.89-2.67)
Medical schools (n=501)	253(50)		-	267(56)		ref
Gender						
Female (n=448)	266(60)	<0.001	ref	288(68)	<0.001	ref
Male (n=299)	118(39)		0.47 (0.35-0.65)*	135(46)		0.47 (0.34-0.65)*
Year in School[#]						
MS2 (n=261)	140(54)	0.614	-	165(67)	0.001	1.91 (1.27-2.85)*
MS3 (n=207)	102(49)		-	97(50)		0.91 (0.60-1.39)
MS4 (n=278)	143(51)		-	145(57)		ref
Specialty Choice						
Primary care (n=358)	206(58)	0.005	1.49 (0.98-2.26)	223(69)	<0.001	3.44 (1.88-6.30)*
Medical specialty (n=257)	124(48)		1.17 (0.76-1.79)	137(55)		1.39 (0.88-2.18)
Surgery (n=142)	61(43)		ref	59(43)		ref

* Statistically significant, $P < 0.05$

[#] Students in research years were excluded from the "year in school" analysis due to the small percentage of respondents in this subgroup.

Percentages are based on the number of survey respondents who answered a question, which may not reflect the total number of survey respondents as response rates varied between questions.

The 40 and 60-hour schedules will be referred to together as reduced-hour residency program schedules. Well over half of students (59%; $n=432$) selected a reduced-hour schedule; interest was significantly higher for women than men (68% vs 46%, $P < .001$; Figure 1) and varied by specialty choice (primary care: 69%, medical specialty: 55%, surgery: 43%; $P < .001$; Table 4).

Discussion

Even after the implementation of duty-hours restrictions, resident burnout continues to be a pervasive problem—in a 2014 study, 60% of residents met criteria for burnout.⁹ Our study examines medical student interest in flexible residency training options. Over half of students desired part-time training options and even more selected reduced-hour programs; the most popular schedule

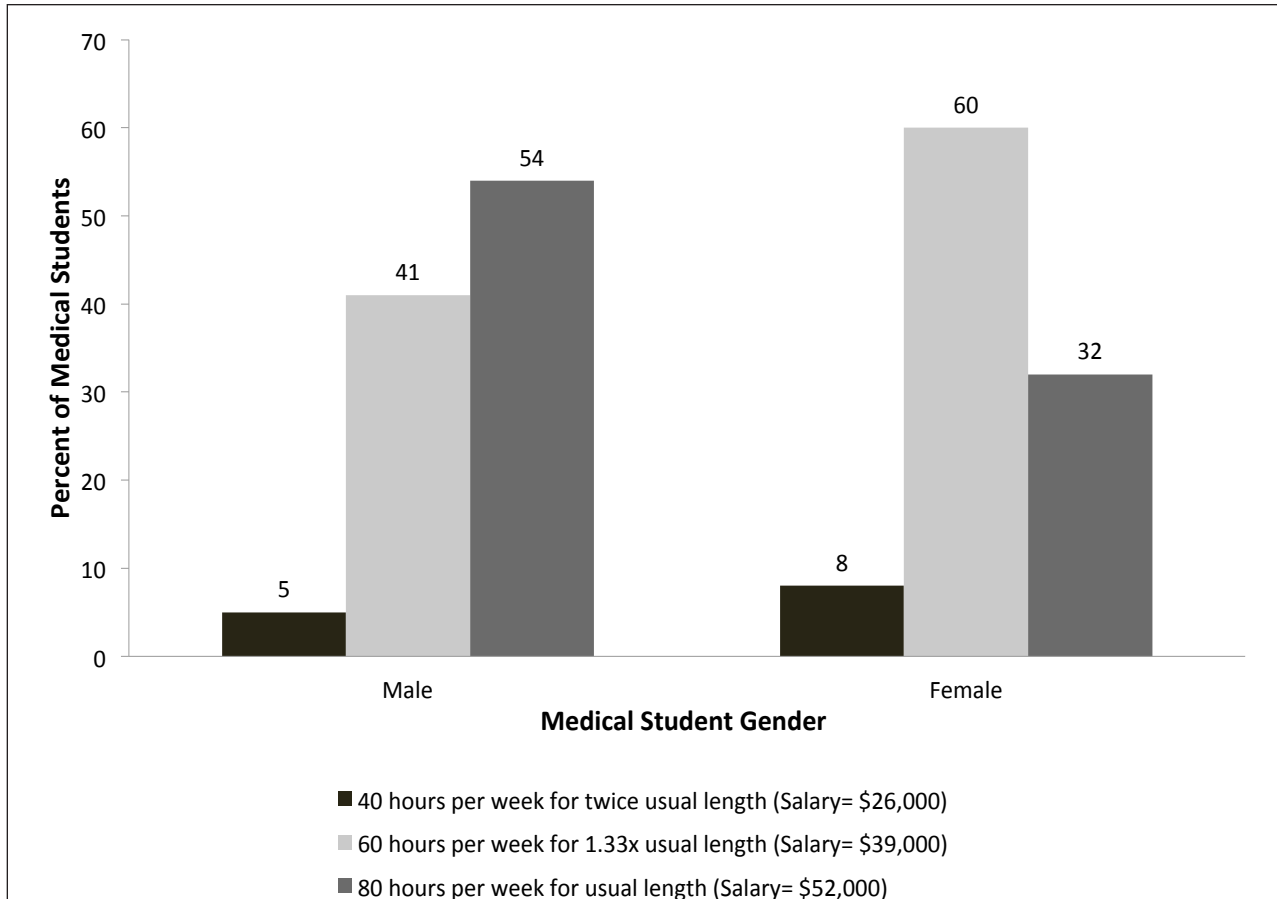
was a 60-hour workweek. Within a residency program, this would mean four reduced-schedule residents could fill three full-time-equivalent positions. However, although there are currently residency programs offering residents the option of working part-time for a portion of their residency training, we do not know of any training programs which have all reduced-time residents.¹⁰

We found that interest in flexible residency training options was higher among women and students interested in primary care. Female residents were more likely than male residents to choose part-time (60% vs 39%, $P < .001$) or reduced hour (68% vs 46%; $P < .001$) training options. We posit that this difference is likely at least in part related to the disparity in childcare responsibilities managed by female and male resident physicians. Recent studies have shown

that over 40% of residents have children before or during their graduate medical education training,¹¹⁻¹³ and resident fathers are twice as likely as resident mothers to have a partner who performs a greater percentage of childcare duties.¹² As for students interested in primary care, we hypothesize that they were more willing to extend their residency to take advantage of flexible training options because their residency training is of a shorter duration.

In addition to improving resident work-life balance,¹⁴ flexible training options may reduce residency scheduling and coverage challenges, enhance medical student recruitment, and improve resident learning due to instruction occurring over more time.^{14,15} However, there are also several potential downsides to less than full-time training, notably the reduction in salary at a time when

Figure 1: Preferred Residency Schedule by Gender



average medical student debt is over \$189,000.¹⁶ Additionally, in a reduced-hour program, residents may not be able to revert to a full-time training schedule if they change their mind about their willingness to extend residency training and accept a reduced salary. If flexible training options were to become more common within residency programs, further studies would be necessary to evaluate the impact of these alternate schedules on continuity of care, quality of care, and professional relationships.¹⁴

Limitations

Our response rates at the AAFP National Conference and three of the four medical schools sampled were disappointingly low (12% to 19%), and our results, therefore, may have been affected by nonresponse bias. Additionally, the medical students responding to our survey

represented a convenience sample, and conference attendees were a fundamentally different cohort of medical students than those from the four medical schools. The dissemination methods varied, as students at the AAFP National Conference did not have access to the electronic version of the survey, and students did not have access to paper versions of the survey at two of the four medical schools, which may have biased students sampled. First-year medical students were excluded from the survey population as the survey period began before the new academic year started. The survey did not specify which fields of medicine were considered primary care versus medical specialties, so this was left to students' interpretation. A further limitation of this study is that after the implementation of the 80-hour workweek duty-hours restriction, residents work approximately

68 hours per week when averaged between specialties over the course of their training, so it is unclear in our reduced-hour residency program scenario how many hours per week residents would end up working on average for the 40 and 60-hour workweek options.¹⁷

Future Studies

It is unknown what effects flexible residency training options might have on the physician workforce. If part-time options or reduced-hour residency programs were to become more prevalent, future studies would be warranted to determine whether these training options would influence projected physician shortages. These alternatives to traditional residency training could theoretically influence future physician productivity based on their potential effects on demand for part-time work, retention within the workforce, timing of

childbearing, and the timing and nature of partial-retirement for physicians ending their careers.

Conclusion

In conclusion, our survey found that there is a strong interest among medical students in access to flexible residency training options. Over half of students surveyed indicated that access to part-time training options would increase their likelihood of applying to a particular program. Nearly half (46%) of male students and over two-thirds (68%) of female students stated that they would choose a 40 or 60-hour workweek residency schedule rather than the current 80-hour workweek residency schedule despite the extension of residency length and reduction in annual salary. This high level of medical student interest indicates that offering flexible training options could be a strong recruitment tool for residency programs.

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