

Family Medicine Specialty Choice and Interest in Research

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Background and Objectives: *This study investigated interest in research related to declining interest in family medicine by US medical school graduates. **Methods:** Twenty-four schools were selected for study based on American Academy of Family Physicians data on the number of their graduates entering family medicine. Data for all graduates in 1997, 1998, and 1999 were obtained from the Association of American Medical Schools matriculation and graduation questionnaires for 23 of 24 schools. **Results:** Measures of research activity or interest were available on matriculation during medical school and at graduation. All were inversely related to interest in family medicine. Students interested in family medicine were less likely to have selected the field of medicine because of research interests, were less likely to have participated in a research project during medical school, and at graduation were less likely to plan on a career involving research. **Conclusions:** Given this pervasive negative relationship between interest in research and interest in family medicine, initiatives intended to increase research within the specialty of family medicine should be evaluated for their effects on student career choices. These initiatives may decrease interest in family medicine among students who don't want to do research but who otherwise might have been interested in family medicine. Conversely, they may increase interest in family medicine among students with research interest, or they may do both.*

(Fam Med 2005;37(4):265-70.)

Academic family medicine units (either departments or subunits of departments) have been established in almost all US allopathic medical schools.¹ Over the past 3 decades, faculty in these departments have succeeded in assuming major teaching roles and providing clinical and professional service. Research, however, has historically not been a major focus of most family medicine faculty and departments,²⁻⁵ and recent research suggests that research as a departmental priority is lower than clinical service and most educational programs.⁶

Outside of academic medical centers, practicing family physicians have located in rural and other underserved areas in proportions higher than other specialists and have remained in primary care, rather than subspecializing, at rates that exceed other primary care specialties.^{6,7} However, few community family physicians and other primary care physicians have participated in clinical research.³

The American Academy of Family Physicians (AAFP) initiated a major program in 1997 to enhance research interest, capability, and activity within the specialty. This included funding three family medicine research centers at academic medical centers, providing funds for research projects, and training for family medicine faculty and clinicians interested in a research career. The AAFP and the organizations representing academic and research-oriented family physicians have sponsored a journal to increase the available opportunities for family medicine researchers to publish their work. The AAFP has also become the sponsor of a nationwide practice-based research network. Departments of family medicine have begun to place more emphasis on research and to create research units.

Past studies of factors that affect student specialty choices have shown an inverse relationship between interest in a research and academic career and the choice of family medicine.⁸ Those students choosing family medicine have been more interested in direct patient care. It is unclear how an increasing emphasis on research by academic family medicine departments will

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affect students' views about the specialty and subsequent specialty choices.

In an earlier study involving a survey of family medicine department heads and faculty at 24 medical schools, we found that every measure of research strength or research activity was negatively related to production of graduates in family medicine.⁹ These measures included research orientation of the department reported by the department head, amount of time spent in research reported by the faculty, and the value placed on research at their institution, which was reported both by department heads and by the faculty. The reason for this correlation is unclear and may pertain to the school as a whole, where research-oriented institutions may matriculate students more interested in research careers and less interested in family medicine, rather than to factors in the family medicine departments.

The issue of research in family medicine is particularly important because of the continuing downward trend in the proportion of US medical school graduates choosing family medicine. The purpose of the analysis reported in the article was to study recent medical school graduates, their specialty choices, and how their views of and interest in research are related to decisions for or against family medicine. Unlike previous studies, this study looks at a variety of measures of research interest, including research activities in medical school and interest in research activity distinct from a career that is academic or research based. It also looks at changes in the relationship of research interest and specialty preference over time, between the first and last years of medical school.

Methods

Using data collected annually by the AAFP, we calculated the proportion of each US allopathic medical school graduating class entering a family medicine residency in each of 3 years: 1997, 1998, and 1999. Puerto Rican schools were excluded, leaving 118 schools. Schools were placed into one of three categories by size: less than 100 graduates, 100 to 150 graduates, and more than 150 graduates. The schools were stratified by size to minimize the effect of small school size, where a relatively small number of students can result in significant changes in percentages entering a given specialty.

The four schools with the largest proportionate increases from 1997 to 1999 and the four schools with the largest proportionate decreases from 1997 to 1999 in the proportion of graduates entering family medicine in each of the three size categories were identified and became the study schools (12 with increases and 12 with decreases, henceforth referred to as schools with increases and decreases). This sample was selected to maximize the chance of detecting factors related to an

increase or decrease of graduates entering family medicine. The total number of students responsible for the change in proportion entering family medicine at each of these schools ranged from five, the smallest, to 30, the largest, with a mean of 12.

The overall project included a survey of all 24 family medicine department heads, family medicine faculty at all 24 schools, and a survey of a sample of graduates from the 24 schools. In addition, individual permissions were obtained from deans at 23 of the 24 schools for use of the Association of American Medical Colleges (AAMC) data. The AAMC data reported in this paper are the results from the matriculation and graduation questionnaires for the 23 schools that gave permission for use. The AAMC data were for all graduates entering all specialties during the same time period (1993–1995 for the matriculation data and 1997–1999 for the graduation data). The University of Arizona Human Subjects Protection Program ruled this research exempt.

Data Analysis

There were four computed variables. The first was matriculation interest in family medicine. This variable was defined as the student mentioning family medicine as one of three choices of specialties in which the student planned certification.

The second variable was plans on matriculation for career activities. Full-time academic faculty and salaried research scientist were grouped together as those interested in research, and private clinical practice, salaried clinical practice, and other were grouped together as those not interested.

The third variable was a measure combining interest in family medicine at matriculation and at graduation. Four categories were formed: interest in family medicine both at matriculation and graduation (firm family medicine), interest in family medicine at matriculation but not at graduation (lost to family medicine), no interest at matriculation but interest at graduation (gained to family medicine), and no interest either at matriculation or graduation (never family medicine).

For the fourth variable, we computed a measure combining academic/research career plans at matriculation and at graduation. Four categories were formed: interest in an academic/research career both at matriculation and graduation (firm research), interest in an academic/research career at matriculation but not at graduation (lost to research), interest in an academic/research career at graduation but not at matriculation (gained to research), and interest in an academic/research career neither at matriculation nor at graduation (never research).

Statistical analyses included chi-square for categorical variables and comparison of means (*t* test) for continuous variables. All analyses were performed using

SPSS for Windows Version 11. In all cases, we used the individual student as the unit of analysis.

Results

Matriculation data were available for 8,403 students matriculating in the years from 1993 to 1995. Graduation data were available for 7,061 students graduating from 1997 to 1999. There were matched matriculation and graduation data for 6,176 graduates.

Factors on Matriculation

The proportion of students interested in family medicine at matriculation increased from 1993 to 1995 for schools with an increase in graduates in family medicine (28% to 32%) and decreased (31% to 28%, $P=.006$) for schools with a decrease in graduates of family medicine. Table 1 presents the means for the student's reports of the importance of different factors in their choice of medicine as a career, grouped into those who were and were not interested in family medicine at matriculation. A negative difference indicates that the factor was more important for those interested in family medicine. In general, those interested in family medicine cited patient-related reasons, while those not interested in family medicine tended to rate more highly the benefits to them (ie, high income) from a career in medicine. Table 2 shows the factors that students indicated were important in their choice of the particular medical school they are attending, which show a similar pattern.

Matriculating students are also asked to indicate their expected involvement in research activities during their medical career, which could be independent of planning a career in research. However, interest in research activities was strongly related to career activities that were planned. Sixty-three percent of those planning to be "exclusively" involved in research and 58% of those "significantly" involved also planned an academic career, and an additional 16% and 7%, respectively, planned a career as a salaried research scientist ($n=8,096, P<.001$). Table 3

indicates the expected involvement for those with interest in family medicine and those with no interest. Students' "planned career activities" were also related to interest in family medicine. At matriculation, 6% of the students interested in family medicine planned an academic or research career compared to 18% of those not interested in family medicine ($n=8,221, P<.001$).

Medical School Factors

Graduates who went into family medicine were less likely than graduates in other specialties to have done an elective research project with faculty in medical school (family medicine 29%, others 52%, $n=7,089, P<.001$) or to have been an author on a research paper submitted for publication (family medicine 10%, others 32%, $n=7,088, P<.001$). In fact, if the pool of those who could have been an author was equal to those who did a research project, a smaller proportion of graduates in family medicine who did research became authors (approximately one third) than graduates in other specialties (approximately 60%).

On the other hand, family medicine graduates were more likely to have had an elective experience serving the underserved (68% versus 59%, $n=7,089, P<.001$), spent time educating high school or college students

Table 1

Factors Important in the Choice of the Field of Medicine by Interest in Family Medicine*†

	Interest in Family Medicine (n)	No Interest in Family Medicine (n)	Difference
Opportunities for research	1.4 (2,476)	2.0 (5,589)	.6
Opportunity to develop expertise in a specialized area	2.2 (2,475)	2.8 (5,595)	.6
Possibility of high income	1.8 (2,474)	2.2 (5,589)	.4
Continuing contact with patients	3.5 (2,476)	3.1 (5,589)	-.4
Doctors enjoy high status and prestige	1.8 (2,483)	2.1 (5,604)	.3
Opportunities for decision making under pressure	2.3 (2,479)	2.6 (5,602)	.3
Opportunity to use manual dexterity skills	1.8 (2,480)	2.1 (5,597)	.3
Advanced diagnostic/treatment technologies	2.3 (2,474)	2.6 (5,594)	.3
Behavioral/psychological aspects of care	3.0 (2,481)	2.8 (5,596)	-.2
Educate patients about health promotion and disease prevention	3.5 (2,481)	3.3 (5,605)	-.2
Opportunity to exercise social responsibility	3.3 (2,475)	3.1 (5,589)	-.2
Physicians can have significant autonomy	2.9 (2,481)	3.1 (5,599)	.2
Opportunities for innovation	2.8 (2,479)	3.0 (5,598)	.2
Opportunity for authority	1.7 (2,477)	1.9 (5,592)	.2
High job security	2.8 (2,475)	3.0 (5,580)	.2
Opportunity to make a difference in people's lives	3.9 (2,476)	3.8 (5,594)	-.1
Medicine is intellectually challenging	3.3 (2,484)	3.4 (5,606)	.1
Opportunity to interact with other health professionals	2.2 (2,482)	2.3 (5,600)	.1
Physicians use critical thinking	3.2 (2,482)	3.3 (5,603)	.1
Opportunities for leadership	2.7 (2,475)	2.7 (5,594)	.06
Doctors can find practices that limit work stress	1.7 (2,480)	1.7 (5,597)	-.08

* Association of American Medical Colleges data collected at matriculation measured with 0=not at all important, 1=slightly important, 2=somewhat important, 3=moderately important, and 4=very important. Numbers vary due to missing values.

† All differences between those interested in family medicine and those not interested are significant at $P .007$.

Table 2
Factors Important in the Choice of a Medical School,
by Interest in Family Medicine*†

	Interest in Family Medicine (n)	No Interest in Family Medicine (n)	Difference
Research reputation of the school	1.3 (2,558)	1.7 (5,782)	.4
Desire to attend school in state	2.4 (2,562)	2.1 (5,783)	-.3
Nature of school's curriculum	2.8 (2,542)	2.5 (5,740)	-.3
Advice of parents	1.4 (2,562)	1.6 (5,792)	.2
General reputation of the school	3.2 (2,561)	3.0 (5,791)	-.2
Teaching methods of the school	3.0 (2,563)	2.8 (5,782)	-.2
Financial cost of attending	2.5 (2,564)	2.3 (5,778)	-.2
Faculty mentorship	2.1 (2,556)	2.0 (5,753)	-.1
Ability of school to place student in residency programs	2.3 (2,553)	2.4 (5,774)	.1

* Association of American Medical Colleges data at matriculation measured with 0=not at all important, 1=slightly important, 2=somewhat important, 3=moderately important, and 4=very important.

† All differences between those interested in family medicine and those not interested are significant at $P < .001$.

about health careers (36% versus 32%, $n=7,088$, $P=.003$), done a community health field experience (31% versus 24%, $n=7,087$, $P<.001$), a home health care field experience (36% versus 30%, $n=7,089$, $P<.001$) or a field experience in nursing home care (34% versus 27%, $n=7,089$, $P<.001$). None of these experiences were significantly related to being at a school with an increase or decrease in graduates in family medicine.

Factors at Graduation

At graduation, plans for a career in research were strongly and negatively related to choice of family medicine (5% for family medicine, compared with 31% for all other specialties, $n=6,866$, $P<.001$). Plans for

research were also related to evaluation of the required medical school clerkships and teaching about research. Of those who were firm research, 30% reported that their family medicine experience was an excellent experience, compared with 37% of those who were recruited to research, 43% of those who were lost to research, and 46% of those who were never research ($n=6,764$, $P<.001$). Conversely, the clerkship rated most highly by those who were firm research and recruited to research was internal medicine, with 54% and 55% rating it as excellent, respectively. The clerkship rated most highly by the never research group was family and commu-

nity medicine ($n=7,060$, $P=.003$). In addition, graduates in family medicine were more likely to feel that instruction in research was appropriate; 43% of graduates in other specialties felt the time was inadequate compared to 36% of those in family medicine ($n=2,481$, $P=.03$).

Time Trends

Two measures looked at the change during medical school of (1) choice of family medicine as a specialty and (2) choice of an academic/research career. Table 4 shows the two together. Of the students who were interested both in research and family medicine on entry to medical school (596), 24% (143) were still planning on family medicine at graduation, but only 4% (six) of the 596 were still planning on research. Seventy-six percent were no longer planning on family medicine (453); in this group, 34% were still planning on research (153). Of 143 students in the firm family medicine group who were interested in research on matriculation, only six remained interested at graduation, and only 15 of the firm family medicine students developed an interest in research. Of 154 students in the recruit to family medicine group initially interested in research, only 10 remained interested at graduation, and only eight students in this group developed an interest in research. Only 4% of those interested in family medicine at graduation were interested in research, and only 2% of all graduates interested in research were interested in family medicine.

Table 3

Intended Research Involvement by Interest in Family Medicine*

	Interest in Family Medicine	No Interest in Family Medicine
Exclusively	—	1%
Significantly	4%	13%
Somewhat	27%	39%
Limited	61%	42%
Not involved	9%	6%
Total	101% (2,532)	101% (5,692)†

* Association of American Medical Colleges matriculation data; $P<.001$

† Total more than 100 due to rounding.

Table 4

Specialty Choice and Research Interest From Matriculation to Graduation*

	<i>Firm Family Medicine</i>	<i>Recruited to Family Medicine</i>	<i>Lost From Family Medicine</i>	<i>Never Family Medicine</i>
Never research	74% (444)	62% (259)	54% (746)	45% (1,713)
Lost from research	23% (137)	34% (144)	22% (300)	25% (960)
Recruited to research	2% (15)	2% (8)	13% (183)	12% (457)
Firm research	1% (6)	2% (10)	11% (153)	19% (716)
Total	100% (602)	100% (421)	100% (1,382)	100% (3,846)

* Association of American Medical Colleges data, $P < .001$.

Discussion

During the study period, students who were planning on going into family medicine were generally not interested in research, and those who were interested in research were generally not intending a career in family medicine. These results raise questions about the consequences of increasing the amount of research in the specialty of family medicine. However, because it is not known why there is a negative relationship between choice of family medicine and these measures of research activity and interest, it is not clear what the consequences for specialty choice would be.

It is possible that the family physician faculty currently doing research are primarily at schools that are strong in research, and these family physicians by comparison to other specialty physicians do not serve as good research role models. This possibility is consistent with the previously published data on family medicine faculty and department heads⁹ and also with the data presented here that show attrition from plans for a family medicine career when there is continued interest in research. If this is the case, then the move to increase the amount of research could eventually create a more experienced cadre of family medicine researchers who would serve as better role models for medical students interested both in family medicine and research and result in more students who are interested in research choosing family medicine.

On the other hand, it is possible that family physician faculty who do research spend less time with medical students and are less likely to function as role models at all. This would result in fewer students being interested in family medicine. This possibility was not supported by the data in a prior study that showed family medicine faculty researchers spending as much time with students as other faculty.⁹

Alternatively, some of the data presented here suggest that students interested in family medicine enter medical school uninterested in research and that rather than seeking out research activities in medical school, they engage in service/clinical activities. These data

suggest that the potential pool of students for family medicine is focused on the “human” aspect of medicine. This possibility could imply that as family medicine becomes more identified with research, these students would have less interest in the specialty.

A fourth and more optimistic interpretation of the consequences of the move to increase family medicine research is that the specialty would broaden to attract both those students who want to do research and, because of increased prestige in the medical school setting, attract more students who want to function primarily in a clinical capacity but who currently opt out of family medicine because of negative perceptions and comments from other faculty.

Limitations

This study has several limitations, including the use of data from just 23 medical schools. However, the results are consistent with other research using all medical schools.^{8,11} An additional limitation is that the questionnaire items refer to research without distinguishing between clinical and bench research. Students interested in family medicine may identify research with bench research and might respond differently if they were asked specifically about clinical or public health research. Further research is needed to examine this consistent inverse relationship, in particular, using measures that permit separating the different types of research. It would be interesting to look specifically at the students who start medical school with an interest both in research and family medicine and the factors related to dropping one or the other interest over the course of medical school.

Conclusions

In summary, there is a strong negative relationship between students’ interest in research and their interest in family medicine. Current initiatives to increase family medicine research activities may or may not influence students’ interest in family medicine.

Acknowledgment: This project was funded by the American Academy of Family Physicians contract #420350.

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