
Factors Associated with Research Efforts of Academic Family Physicians

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Background. Family medicine has struggled to gain stature among academic medical disciplines. One factor has been the paucity of quality family medicine research.

Methods. Two hundred eight full-time physician faculty members at family practice residency programs completed a survey that focused on demographics, training, experience, professional activities, and factors that motivated them to select academic careers. Bivariate and multivariate analyses were performed to determine if any of these factors was associated with increased time spent on research.

Results. Faculty members who spent 10% or more of their professional time on research were more likely to be fellowship trained, employed in university training programs, have more academic experience, and to cite the opportunity to do research as a factor motivating

them to enter academic medicine. However, when multivariate analysis was performed, the only significant factor that predicted that a faculty member would devote 10% or more time to research was having an interest in research when first seeking a position in academic medicine.

Conclusions. The amount of time that family medicine faculty members dedicate to research is related to a strong interest in research when seeking their academic position. Fellowship training and an academic environment may have assisted faculty in performing research, but were not independent predictors of future involvement in research.

Key words. Family practice; faculty; research; time factors; academic medical centers. (*J Fam Pract* 1993; 37:44-48)

An academic discipline is defined by the scope of its clinical interests and measured by the output of its academic researchers. In becoming an academic discipline, family medicine has implicitly agreed to these principles.¹⁻³ After 20 years as an academic discipline, family medicine research has been successful in defining a clinical mission; however, that mission is still a stepchild of the clinical and teaching functions of training programs.^{3,4}

As family medicine has developed, the types of research important to the specialty have become better focused.⁵⁻⁷ Family medicine research to date has in-

cluded a broad range of topics, but the emphasis has been on issues associated with health services and technology evaluation, education, and various clinical areas, especially preventive services.⁸⁻¹¹ Thus, the scope of family practice research has been defined and an agenda for future directions has been proposed.^{7,12-14}

Many still believe, however, that research is not as high a priority in family medicine as it should be.^{15,16} Research time for family medicine faculty members is difficult to come by and inadequate for the quality of research the discipline must produce to achieve academic parity with other specialties.^{17,18} Although the appropriate amount of time for academicians to devote to research has not been firmly established, productivity is usually minimal if research time amounts to less than 10% of a physician's total professional commitment.¹⁹ To become productive researchers, academic family physicians must devote more time to research.¹⁷

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Recruiting those family physicians who are likely to devote a substantial portion of their professional time to research is important because of the limited resources available for training faculty and funding projects. Some factors that are associated with greater research productivity have been identified²⁰; however, it is unclear if these factors alone can predict that a faculty member will successfully pursue research.

The intent of this study was to determine if specific characteristics about a faculty member's training, experiences, and motivations when entering academic medicine were associated with subsequent concentration on research.

Methods

Study Sample

A survey was performed using a stratified random sample of full-time family physicians employed in family practice residency programs in the spring of 1992. Based on a random number sequence, 15 residency programs were chosen from each of the following categories: community programs unaffiliated with a university; community programs affiliated with a university; university-based programs; and university-administered programs. The number of programs ($n = 15$) surveyed in each category was chosen so that at least 75% of the programs in the smallest category, that is, 20 community programs not affiliated with a university, would be included.

In an effort to increase the response rates,²¹ the residency director of each program was sent a supply of study questionnaires to be distributed to all full-time (ie, spending 80% or more of their time) physician faculty members.²² Programs from which no response came were sent reminders 3 weeks and 6 weeks after the initial mailing.

Forty-one residency programs responded to the survey: 13 (87%) unaffiliated community programs, 11 (73%) community programs affiliated with universities, 8 (53%) university-administered programs, and 8 (53%) university-based programs. A total of 208 questionnaires were returned (50% of the total faculty at all programs in the initial sample).

Survey Instrument

The survey instrument focused on demographic variables, training and experience, and the amount of time currently devoted to various aspects of practice. Respondents were also asked to rate, using a 5-point Likert scale, various factors that motivated them to enter academic

medicine and select a particular program. Faculty members who answered that a variable was either a "positive influence" or a "highly positive" influence were then compared with those who responded that these factors were neutral or negative influences on their decision to enter academic medicine or choose a particular program.

The study questionnaire was pretested on faculty members from two residency programs (one university program and one community program) and modified based on the comments received. The revised questionnaire was then reviewed by faculty members and further modified.

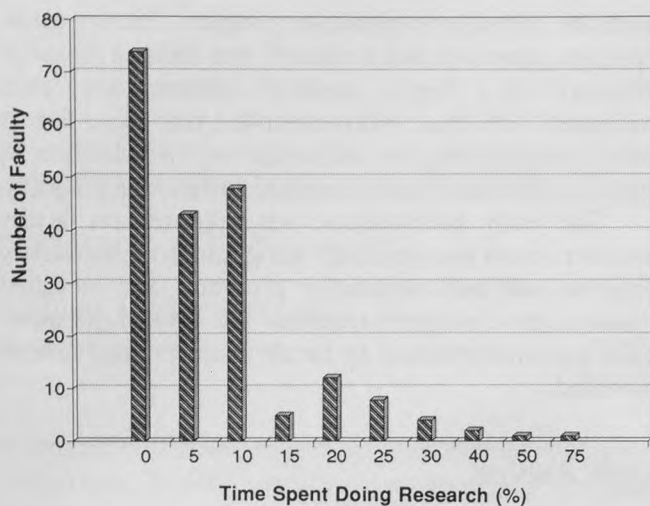
Data Analysis

Based on the evidence that the minimal amount of time required to conduct meaningful research is 10% of a faculty member's total effort,¹⁹ the sample was divided into two groups: those who devoted less than 10% of their time and those who devoted 10% or more of their time to research.

Categorical variables were analyzed with chi-square, and continuous variables were compared with *t* test. Multivariate analysis was performed using logistic regression. The dependent variable for logistic regression was whether the faculty member spent 10% or more time conducting research. Independent variables in the model were determined by bivariate analysis and included prior interest in research, type of residency program, fellowship training, and length of academic experience. In addition, the analysis was repeated with interactive terms (prior interest in research multiplied by fellowship training) and (prior interest in research multiplied by type of program). Logistic regression was performed with computer-determined stepwise introduction of variables using SAS software.

Results

The final sample included 58 (28%) faculty members from community residency programs unaffiliated with a university, 57 (27%) faculty from community university-affiliated programs, 38 (18%) faculty from university-administered programs, and 55 (26%) faculty from university-based programs. The mean (\pm SD) age of all respondents was 40.8 (\pm 8.2) years (range 29 to 69 years). One hundred fifty-six (76%) were male. Nearly all respondents (95%) were board-certified in family practice; 14 were board-certified in a second specialty as well. Ninety percent of the respondents had completed a family practice residency training program and 29% had completed a postresidency fellowship. Faculty develop-



Distribution of time spent on research by family medicine faculty.

ment (35) was the most common fellowship completed, with geriatrics (8), preventive medicine (4), and community or public health (4) comprising most of the other fellowships. Respondents had an average of 10.7 (\pm 9.0) years of professional experience. One hundred eighteen respondents (58%) had previous private practice experience before entering academic family medicine. On the average, respondents had been in academic medicine for 6.7 (\pm 5.3) years.

Respondents' involvement in research varied greatly (Figure). The time devoted to research appeared to follow a bimodal distribution, with the largest number of faculty spending no time at all on research and a substantial but smaller number spending 10% of their time on research. As noted above, the sample was split into two groups: those who devoted 10% or more time to research and those who devoted less than 10% of their time to research.

Comparisons were made between the two groups based on several variables (Table). Three of these variables were associated with spending 10% or more time

Association Between Demographics, Training, and Experience and the Likelihood of Physicians Devoting 10% or More Time to Research

Variable	Odds Ratio (95% CI) of Increased Research Time	P Value
Sex, male	1.76 (0.87–3.57)	NS
University program	2.43 (1.31–4.52)	.002
Fellowship training	2.41 (1.26–4.69)	.005
Private practice experience	0.83 (0.48–1.62)	NS
Years of academic experience	—	.05

CI denotes confidence interval; NS, not significant.

on research: (1) employment in a university-based or university-administered training program ($P = .002$); completion of a postresidency fellowship ($P = .005$); and years of academic experience ($P = .05$).

The influence of various factors on faculty members' decisions to enter academic medicine and select a particular program was also compared with the likelihood of spending 10% or more time on research. No associations were found between type of residency program, reputation of program, or academic lifestyle, and an individual's decision to enter academic medicine or devote 10% or more of his or her time to research. The only factor that was associated with increased likelihood to devote 10% or more of their time to research was research being a motivating factor for entering academic medicine (odds ratio 4.12 [95% confidence interval, 2.41 to 7.96], $P = .001$).

Multivariate analysis was performed using a logistic regression model containing all the statistically significant variables noted above. The only factor that was found to be significant was the influence of research in motivating an individual to enter academic medicine (odds ratio 2.48 [95% CI, 1.28 to 3.68], $P < .001$). Repeating the regression with the addition of interactive terms (interest in research X type of program) and (interest in research X fellowship) did not improve the fit of the model.

Discussion

Successful family medicine researchers tend to be experienced academicians who are employed in university-based programs and who have had fellowship training.²⁰ This study confirms these observations, but suggests that those who state they entered academic medicine specifically for the opportunity to do research are those most likely to secure significant time to perform research activities. The other variables cited above (ie, type of program and fellowship training) are not independently associated with research activity when adjusted for prior interest in research. Most likely, persons who have a prior interest in research enter postresidency fellowships and select positions at university programs where more resources are available for research.

Results from this survey and others²³ show that only a small percentage of faculty members devote at least 10% of their time to research. The lack of time available to perform research has been reported to be one of the least satisfactory aspects of academic medicine and a frequent source of dissatisfaction.²³ Although it has been argued that understaffing of academic departments and competing clinical, administrative, and teaching responsibilities usurp the research time afforded to academic

family physicians,^{5,17,18} data from this study suggest that those faculty members who entered academic medicine specifically to be involved in research are more successful at securing time for it. The large percentage of respondents in this study who viewed research as a negative or neutral factor when deciding to enter academic family practice suggests that for many family medicine faculty members the failure to become involved in research reflects a relative lack of interest rather than a lack of time because of competing professional responsibilities.

Research has been identified as a major challenge to academic family medicine in the future.¹⁷ For research programs to be effective, a supportive environment and a critical mass of experienced researchers is needed.^{20,24} This study suggests that family medicine is still far from achieving this catalytic situation. If family medicine research is to progress, faculty members must have more interest in doing research. Recruitment of more academically inclined students into the profession is the best means of increasing the future number of family medicine faculty who perform research. To achieve this, faculty members must serve as role models, convincing students that family medicine is a field in which their research interests can be pursued. This modeling must occur not only at university centers but also in community-based programs where the majority of family practice residents train.²⁵ Currently, the relative lack of research activity by family physicians may be serving to discourage students interested in research activities from selecting family practice as a career.

This study focuses on the amount of time devoted to research, but does not measure the quality or quantity of research generated during this time. Some investigators may devote little of their time to research, but still perform high-quality studies. However, designated time for research is important, especially for producing a large volume of scholarly work.²⁶ Although this study could not correlate the amount of research time with the quality of research produced, evidence suggests that lack of time significantly hampers overall research productivity.²⁷

In addition, caution should be exercised in interpreting these results beyond the limitations of this study. The sample for this study was composed of equal numbers of community and university residency training programs. While this sample was useful to identify associations between various faculty attributes and an interest in research, aggregate data may not be representative of all family practice residency programs. For example, the distribution of research time for this sample (Figure) was affected by oversampling of university programs as compared with community programs. Since faculty at community programs are likely to spend less of their time

doing research compared with those in university programs, the actual percentage of total faculty members who spend over 10% of their time in research may be lower than found in this sample. The caution not to generalize the distribution of research time in this sample to all family practice residency programs is particularly important should one attempt to use these data to compare the research capacity of family practice education programs with that of other specialties.

In conclusion, support for research, even among academic family medicine leaders, has not always been enthusiastic.¹⁵ As academic family medicine approaches a period of transition,²⁸ future leaders will need to be more aggressive in advocating faculty involvement in research. Since an interest in research is the best predictor of future involvement in research, efforts should be made to introduce research concepts early in the training process, identify those physicians who are motivated to perform research, recruit them for academic positions, and provide them with research time and training.

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References

1. Davies TC. The academic role and scholarship. *Fam Med* 1986; 18:166-7.
2. Coggan P. Community of scholars, family medicine, and the academic imperative. *Fam Med* 1988; 20:242-3.
3. Holoway RL, Hale KL, Rakel RE. Academic promotion and tenure in US family medicine units. *Acad Med* 1989; 64:270-2.
4. Geyman JP. Family medicine as an academic discipline: progress, challenges, and opportunities. *J Fam Pract* 1990; 31:297-303.
5. Parkerson GR. Meeting the challenge of research in family medicine: report of the study group on family medicine research. *J Fam Pract* 1982; 14:105-13.
6. Muncie HL, Sobol J, DeForge BR. NAPCRG abstracts 1977-1987: analysis of research designs and methods. *Fam Med* 1990; 22:125-9.
7. Culpepper L. Family medicine research: major needs. *Fam Med* 1991; 23:10-4.
8. Geyman JP, Berg AO. *The Journal of Family Practice* 1974-1988: window to an evolving academic discipline. *J Fam Pract* 1989; 28:301-4.
9. Estes EH. Primary care research: where have we been? where are we going? In: A research agenda for primary care: summary report of a conference. Rockville, Md: Agency for Health Care Policy and Research, 1991.
10. Nutting PA. The scope of research in family practice and primary care. *J Fam Pract* 1991; 33:413-4.
11. Marvel MK, Staehling S, Hendrick B. A taxonomy of clinical research methods: comparisons of family practice and general medical journals. *Fam Med* 1991; 23:202-7.

12. Nutting PA. Community-oriented primary care: researchable questions for family practice. *J Fam Pract* 1990; 30:633-5.
13. Nutting PA. Research in progress by family physicians. *J Fam Pract* 1991; 32:361-3.
14. Miller WL, Crabtree BF, Yanoshik MK. Expanding the boundaries of family medicine research. *Fam Med* 1991; 23:425-6.
15. Rogers JC. Parting shot: do our leaders really care about research? *Fam Med* 1991; 23:420.
16. Murata PJ, Lynch WD, Puffer JC, Green LA. Attitudes toward and experience in research among family medicine chairs. *J Fam Pract* 1992; 35:417-21.
17. Culpepper L. Family medicine research. In: A research agenda for primary care: summary of a conference. Rockville, Md: Agency for Health Care Policy and Research, 1991.
18. Perkoff GT. The research environment in family practice. *J Fam Pract* 1985; 21:389-93.
19. Knorr KD, Mittermeir R, Aichholzer G, Waller G. Individual publication productivity as a social position effect in academic and industrial research units. In: Edwards FM, ed. *Scientific productivity: the effectiveness of research groups in six countries*. Cambridge, England: Cambridge University Press, 1979:55-94.
20. Bland CJ, Schmitz CC. Characteristics of the successful researcher and implications for faculty development. *J Med Educ* 1986; 61:22-30.
21. Kelly RB, Valez-Holvino O, Alemagno SA. Serum cholesterol: attitudes and behaviors of family practice residents. *J Fam Pract* 1991; 33:259-65.
22. American Academy of Family Physicians. *Family practice residency programs*. Kansas City, Mo.: American Academy of Family Physicians, 1991.
23. Garr DR. Characteristics and job satisfaction of family physicians in full-time teaching. *Fam Med* 1986; 18:269-73.
24. Day TW, Hafferty FW. Anticipating the future: a national survey of family practice residency directors. *Fam Med* 1989; 21:355-8.
25. Kane WJ. Research in family medicine residencies: why and how. *J Fam Pract* 1976; 3:668-70.
26. Perkoff GT. On creativity. *Fam Med* 1992; 24:17-8.
27. Culpepper L, Franks P. Family medicine research: status at the end of the first decade. *JAMA* 1983; 249:63-8.
28. Green LA, Murata PJ, Lynch WD, Puffer JC. A characterization of the imminent leadership transition in academic family medicine. *Acad Med* 1991; 66:154-8.

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