

Interpractice Variation in Barbados Family Practice

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The 11 practices of the Barbados Family Practice Morbidity Survey were analyzed according to the age and sex of the physicians. Male physicians had larger practice populations than did the female physicians but carried on fewer repeat encounters during the 12 months of the survey. The female physician practices recorded fewer domiciliary calls, more investigations and referrals, and a larger patient encounter female-male ratio than did the practices of male physicians. Younger physician practices recorded fewer domiciliary calls, investigations, and referrals than did those of their older counterparts. Statistically significant differences in morbidity between male and female practices were demonstrated. The results demonstrate the magnitude of interpractice variation according to the age and sex of family physicians and suggest its increasing importance at a time when more women are entering family practice.

Differences that exist among separate family practices are well recognized. In an effort to neutralize the problems created by these differences, several family practice morbidity researchers have included large numbers of physicians in their surveys.¹⁻³ More specific studies have demonstrated differences in family medicine morbidity among urban, rural, and teaching practices,⁴ and between graduate family physicians and those without specific family medicine training.⁵

Among the many reasons for the variation of practice morbidity and procedures are the behaviors of both patients and physicians. The physician's training, experience, and special interests have been reported as contributing more than any

other variable to differences among physicians.⁶ This paper considers how the basic phenomena of age and sex of the physician have influenced variation among practices. The data were from the morbidity survey in the small developing country of Barbados, where patients were from a semiurban environment and the physicians were neither trained in family medicine residencies nor involved in teaching practices.

Methods

The 11 physicians represented 21 percent of the island's family physicians, and their practices were well distributed among the population. There were four group practices of two physicians each and three solo practices. Recording took place at every physician-patient encounter for the 12-month period beginning September 1978. Prior

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	Male	Standard Deviation	Female	Standard Deviation
Physicians	9		2	
Patients (mean)	3,440	1,500	2,093	759
Repeat visits per 1,000 patients	420	191	1,178	10
Encounters (mean)	4,886	1,521	4,566	1,636

to this, the physicians had evolved a consensus on terminology and diagnosis. The 1975 ICHPPC classification was used.⁷

The protocol was so structured that only the most necessary information was taken from each encounter, and the recording routine was built into the normal practice procedures. The data collection sheet was a computer designed, practice-compatible form which included the patient's name, date of birth, sex, and repeat visits during the survey period. The physicians were committed to a problem label at every encounter, up to a maximum of three per encounter, to be coded and recorded at the time of the encounter, on which was indicated any investigation or referral.

On completion, a validation study was done, choosing a random sample of encounters from the final computer printout and matching the problem labels with subsequent events in the physician's case notes.

Results

Of the 11 physicians in the survey, nine (81.8 percent) were men and two (18.2 percent) were women. Their ages fell into three ranges: five (45.5 percent) were between 25 to 39 years, four (36.3 percent) were between 40 to 49 years, and two (18.2 percent) were between 50 to 65 years. One female physician was in the 25- to 39-year age range, and the other was in the 40- to 49-year age range. The mean number of patients seeing male physicians was 3,440, and the mean number seeing female physicians was 2,093. Female physicians

saw their patients more often, with 1,176 repeat visits per 1,000 patients, as compared with 420 repeat visits per 1,000 patients for the male physicians. During the 12 months of the survey, therefore, there was little difference between the number of encounters by male and female physicians (Table 1).

In the practices of the male physicians, a patient encounter ratio of male to female of 1 to 1.6 was recorded; in the practices of the female physicians, this was 1 to 3.9. Variation of the male-to-female encounters was also demonstrated at the different age ranges of the physicians (Table 2), where statistically significant more female patients attended the younger physicians.

Analysis of call encounters demonstrated that more calls were made by male physicians and that there was a marked difference according to the age of the physician, with those over 40 years doing many more calls than their younger counterparts (Table 3). Female physicians ordered more than twice the investigations than did their male colleagues, and physicians aged over 50 years ordered more laboratory and radiological investigations than did the younger ones. This pattern of variation was very similar for referrals to hospital departments, with female physicians referring more than twice as many patients. Physicians aged over 50 years referred more often than did their younger colleagues (Table 3).

In the Barbados General Practice Morbidity Survey,⁸ the problems encountered were arranged in rank order of frequency according to the main diagnostic categories of ICHPPC. For this study the

	Male Patient	Female Patient
Sex of Physician*		
Male	16,968	27,012
Female	1,856	7,238
Age of Physician*		
25 to 39 years	9,899	20,459
40 to 49 years	5,415	10,883
50 to 65 years	3,510	2,908
Total	18,824	34,250

*P<.01

	Calls	Investigations	Referrals
Sex of Physician			
Male	45.3	114	55
Female	33.7*	263**	130*
Age of Physician			
25 to 39 years	30	133	55
40 to 49 years	64	81	56
50 + years	70*	230**	135*

*P<.001
**P<.0001

nonillness category was excluded, and the following six categories, which collectively accounted for 50 percent of all morbidity encountered, were used to demonstrate differences between male and female practices: respiratory, infective and parasitic, genitourinary, cardiovascular, accidents, and mental.

Table 4 shows that there was a statistically significant difference between the practices of male and female physicians in regard to the morbidity

recorded. In particular were the problems classified as psychological, with male physicians recording 80 out of 1,000 patients, and female, 304 out of 1,000 patients.

Morbidity collated from the practices according to the age of the physician does not demonstrate a marked difference, except between the practices of young physicians and those aged over 40 years (Table 5). The validation study⁸ revealed a 5.2 percent error in this morbidity.

	Number of Problems Male Physician Practices	Number of Problems Female Physician Practices
Respiratory	235	279
Infective and parasitic	143	292
Genitourinary	118	293
Cardiovascular	119	193
Accidents	121	143
Psychological*	80	304
*P<0.001		

Discussion

Of the many criteria that can influence the content of a family practice, the physician's age and sex are probably the most fundamental. In this study some factors were constant: none of the recording physicians were trained in family practice residencies, and none of the practices were teaching practices. Patients were free to attend the physician of their choice under a fee-for-service system, and there was no patient selection by the physicians, whose services were available to all who requested them. The environment also was uniform; Barbados is a small island, with an economy based on sugar cane and tourism, where both urban congestion and rural isolation are nonexistent. Despite this, a substantial variation in procedures and morbidity has been demonstrated. Although the physicians in the survey represented 21 percent of the country's family physicians, their numbers were small, and therefore, the results are only suggestive.

Until specific attitude studies are carried out, one can only surmise as to why male patients are hesitant to consult with female physicians, and why female patients showed a preference for the younger physicians. The smaller practice populations and fewer domiciliary calls by the female

physicians can be explained by their dual responsibilities to practice and home. This is particularly so in the Caribbean, where women traditionally manage the affairs of the home and family and the men are the income earners.

The fewer domiciliary calls made by the younger physicians may be a reflection of the teaching in medical schools, where clinical skills and house procedures are taught more frequently than are the values of the domiciliary visit. In this study it was the older physicians, with their years of personal care and understanding, who often practiced the house call, visiting patients made relatively immobile by age and illness.

An interesting finding was that female physicians ordered more investigations and referred more frequently than did their male counterparts. The older physicians did similarly, unlike reports from England, which suggest that it is the younger physicians who make the greatest demands on the laboratory services.⁹ The vast difference in morbidity between the male and female practices was another remarkable finding of this survey.

The results demonstrated that the practices of female physicians were composed of considerably more female patient encounters than those of male physicians. This difference in sex composition of the practices is an important reason for morbidity

Table 5. Morbidity of Most Frequent ICHPPC Categories by Age of Physician

ICHPPC Categories	Physician Practice Problems per 1,000 Patients		
	Aged 25 to 39 years	Aged 40 to 49 years	Aged 50 to 65 years
Respiratory	154	166	187
Infective and parasitic	229	270	227
Genitourinary	134	150	132
Cardiovascular	136	75	81
Accidents	107	156	101
Mental	81	138	120

Physicians aged 25 to 39 years and 40 to 49 years, $P < .001$
 Physicians aged 40 to 49 years and 50 to 65 years, $P < .05$

differences. Morbidity in relation to genitourinary and mental problems and practice procedures, such as laboratory investigations and referrals, may be expected to vary considerably as the female component of the practice population increases. Other reasons for this variation among family practices are the personality, manner, and professional interest of the physicians. Patient behavior based on personal preferences and social and cultural beliefs must also contribute to the multifactorial causes of interpractice variation.

In communities where patients have a choice of the services they use and physicians have a degree of professional freedom, this phenomenon of interpractice variation is significant. At a time when there are more women coming into family practice,¹⁰ it is inevitable that patients will be cared for by physicians of both sexes and different ages. In this situation interpractice variation could become an important phenomenon in family practice.

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References

1. Morbidity statistics from general practice. In Office of Population Censuses and Surveys, Royal College of General Practitioners, Department of Health and Social Security. London, Her Majesty's Stationery Office, 1973, pp 6-7
2. Bridges-Webb C: The Australian general practice and prescribing survey (special supplement). *Med J Aust* 2(1):5, 1976
3. Marsland DW, Wood M, Mayo F: Data bank for patient care, curriculum, and research in family practice: 526,196 patient problems. *J Fam Pract* 3(1):25, 1976
4. Green LA, Reed FM, Martini C, et al: Differences in morbidity patterns among rural, urban, and teaching family practices: A one-year study of twelve Colorado family practices. *J Fam Pract* 6:1075, 1979
5. Frey JJ, Rice CA: Family practice in Massachusetts: A comparison of residency trained family physicians with the general practitioner experience of 1967-1968. *J Fam Pract* 10:663, 1980
6. Cypress BK: Characteristics of visits to female and male physicians. National Ambulatory Medical Care Survey United States, 1977. In National Center for Health Statistics (Hyattsville, Md): Vital and Health Statistics, series 13, No. 49. DHHS publication No. (PHS) 80-1710. Government Printing Office, 1980, p 5
7. International classification of health problems in primary care. Report of the Classification Committee of the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians. Chicago, American Hospital Association, 1975
8. Hoyos MD: Morbidity in general practice in Barbados. *West Indian Med J* 29:97, 1980
9. Hitchens RAA, Lowe CR: Laboratory services in general practice. *Med Care* 4:142, 1966
10. Geyman JP: Increasing number of women in family practice: An overdue trend. *J Fam Pract* 10:207, 1980