A Comparison of the Morbidity Recorded in Two Family Practice Surveys

S. J. Kilpatrick, Jr., PhD
Maurice Wood, MD
Richmond, Virginia

Crombie and his associates have recently summarized the results of their National Morbidity Survey in general practice in England.[1] The current paper presents a comparison of one year's data from Virginia with Crombie's study. The Virginia Family Practice Record System is modeled on the Second National Morbidity Survey with minor modifications. In order to use a problem-oriented medical record, our diagnostic coding utilizes a modified RCGP classification (RCGP [US]). There is no provision in our system for changing diagnosis as there is in the National Morbidity Survey.

Family practitioners in the Virginia study summarize each face-to-face contact by listing the problems presented on a worksheet. This procedure and the contents of these records have been described by Marsland et al.[2] Since problems are coded by the physician as new or old problems, we can count the number of episodes of disease brought by a given patient to his family practitioner in a given year. An episode is a period of disease during which there has been one or more visits to the family practitioner for that problem. For the most part this paper deals with episode rates per 100 patients per year, that is, the number of new problems brought to the family practitioner by 100 patients in a year. The episode rate per 100 patients is closer to the incidence of morbidity in the community. The physician can influence this rate by the number of new problems he codes during a visit. However, it is felt that the episode rate per 100 patients per year is less sensitive to physician influence than, say, total visits per 100 patients per year, a large component of which is repeat visits initiated by the physician rather than the patient.

This paper was presented at the North American Primary Care Research Group meeting in San Francisco, California, April 22-24, 1976. From the Department of Family Practice and the Department of Biostatistics, Medical College of Virginia, Richmond, Virginia. Requests for reprints should be addressed to Dr. S. James Kilpatrick, Jr., Department of Biostatistics, Medical College of Virginia, Box 923, MCV Station, Richmond, Va 23298.

Results

Table 1 summarizes the two studies. Note that we have further divided our data into the seven community and three teaching practices. In one year, we recorded about one third of the number of patients in the English study. Family practitioners in the community practices see about twice as many patients as do their peers in England.

Since age and sex affects the episode rate per 100 patients and since the composition of patient populations varies from practice to practice, we standardize episode rates per 100 patients by age and sex. In fact, the Virginia FY 75 study had 8.5 percent more persons aged 15 to 44 years than did the English study (NMS 2).

Each of the seven community practices and three teaching practices in Virginia FY 75 and the 53 practices in NMS 2 can therefore be represented by a standardized episode rate per hundred patients. This information is summarized in Table 2, which shows the median adjusted rate for each group of practices together with the maximum and minimum around that value. There is a clear gradient from community practices to teaching practices to the English practices, which have the highest episode rates after standardization. There is very little overlap between the Virginia community practices and the English general practices, the maximum (227) of the community practices being higher than only four of the 53 English practices considered. Our teaching practices, on the other hand, are comparable to some of the English practices recording lower morbidity.

Since our teaching practices have rates falling between our community practices and English general practice, and since they are composed

Table 1. Comparison of English and Virginia Morbidity Surveys

	Virginia FY 75 (July 1, 1974—June 30, 1975)			England and Wales NMS 2 (July 1974—June 1975)
	Community	Teaching	Total	
Number of Practices	7	3	10	53
Number of Patients*	37,240	28,123	65,363	196,292
Number of Physicians (FTE)†	10.5	18	28.5	110+
Patients per Physician (FTE)†	3,547	1,562	2,293	1,784—

*A patient is a person who has reported at least one episode of illness to the doctor in disease groups 1-18 of the RCGP (US) or RCGP classifications.

†Full-time equivalent.

of family doctors at different stages in training, it was considered necessary to further subdivide according to the status of the recorders. Table 3 shows a clear gradient in the episode rates per patient from the least-experienced to the most-experienced physician. Faculty members would appear to record about 41 more episodes per 100 patients than do first-year residents. An attempt is also made in this table to show the workload of these different groups in terms of the number of patients per full-time equivalent (FTE). Since there was no obvious association between workload and episode rate, we sought an explanation for this gradient in the characteristics of patients seen by different types of recorders.

This examination revealed that the faculty members tend to see older patients on average. Thus, Table 4 shows that the faculty saw patients 26 percent of whom were over 65, compared with seven percent for first-year residents. Accordingly, the episode rates per patient for each type of recorder has been adjusted for the age/sex of the patients seen. After standardization, there is little difference in the episode rates recorded by second and third-year residents and faculty. First-year residents still record a lower episode rate per patient, but this may have been caused by an inaccurate conversion of 37 first-year residents into three FTEs.

Table 2. Episode Rates per 100 Patients per Practice (Adjusted for Age and Sex)

	Virginia FY 75		England and Wales NMS 2
	Community	Teaching	
Median	158	248	271
Maximum	227	253	414
Minimum	151	248	205

Table 3. Episode Rate and Workload by Status of Recorder in Three Virginia Teaching Practices

Status of Recorder	Number of Recorders (FTEs)	Patients per FTE Recorder	Episode Rate per 100 Patients
First year	37 (3)	1028	233
Second year	26 (6)	2060	248
Third year	31 (5.5)	1705	257
Faculty	8 (3.5)	944	274

Table 4. Age and Sex Adjusted Episode Rates by Status of Recorder in Three Virginia Teaching Practices

Status of Recorder	Average Age of Patients	% Patients over 65	Standard Episode Rate per 100 Patients
First year	25.3	7	240
Second year	29.8	8	250
Third year	31.1	9	254
Faculty	47.0	26	252

Discussion

Exact comparisons between Virginia and England are impossible due to differences in the health-care systems, to say nothing of the differences between the two recording systems. With that caveat, the English general practitioner has a greater workload from a smaller number of patients. Thus, he records 2.71 episodes presented by each of 1,800 patients on average compared with 1.58 episodes for each of approximately 3,500 patients per family practitioner in our community practices. Each community physician in Virginia records 5,500 episodes per year compared with 4,900 episodes by his English counterpart but records fewer episodes per patient. This perhaps reflects the different health-care systems; the English GP is the only source of primary care and a visit to him involves no direct cost to the patient.

The finding that, in teaching practices, faculty members tend to see older patients is not unexpected. It is natural for incoming residents to be assigned new patients who will, in general, tend to be younger than the practice population. The need to use age and sex specific rates or rates standardized for age and sex differences is obvious. Such standardization has largely explained an apparent gradient in episode rates per patient which would otherwise have appeared to have been associated with experience.

Acknowledgements

The authors are indebted to their colleagues in the participating practices for this data and to Russell Boyle for his painstaking tabulations. This paper was supported by Grant Number 1 RO1 HS 01899-01 from the National Center for Health Services Research (HRA).

References

1. Crombie DL, Pinsent RJFH, Lambert PM, et al: Comparison of the first and second National Morbidity Surveys. J R Coll Gen Pract 25:874-878, 1975
2. Marsland DW, Wood M, Mayo F: A data base for patient care, curriculum, and research in family practice. J Fam Pract 3:37-68, 1976

Continued from page 962

Table 2. Hypovitaminemia in a Malnourished Alcoholic

Test	JD	Normal subjects
Thiamin	10*	25-75 ng/ml
Thiamin disappearance	6*	20-30 min
Transketolase	660*	800-1000 μg/ml/hr
Transketolase + TPP	990	800-1000 μg/ml/hr
TPP effect	50*	15% or less
Vitamin C	0*	0.4-1.5 mg%
Vitamin E	0.2*	0.8-1.2 mg%
β-Carotene	0	40-150 μg%
Vitamin A	24	25-70 μg%
Vitamin B_4	19*	30-80 ng/ml
Folic acid	4.7*	5-24 ng/ml
Vitamin B_{12}	188	115-800 pg/ml
Riboflavin	265	100-500 ng/ml
Nicotinic acid	5.7	3.5-9.0 μg/ml
Biotin	403	200-800 pg/ml
Pantothenic acid	344	200-1000 ng/ml

*Indicates deficiency

Faulty thiamin response can be brought about by: (1) inadequate absorption—the absorption of thiamin hydrochloride is rate limited;[15,22] (2) deficient capacity to convert thiamin into thiamin pyrophosphate (cocarboxylase), causing a tissue biochemical lesion (Table 1);[16] and (3) a deficient ability to couple thiamin pyrophosphate, as coenzyme, to a missing apoenzyme, ie, an apoenzyme deficiency which also causes a tissue biochemical lesion; all these combinations occur in man and can delay clinical improvement.[16]

Several investigators have found that fat-soluble thiamin congeners have been as effective as parenteral thiamin itself in reversing all symptoms of thiamin deficiency when given orally.[22] The oral absorption of thiamin·HCl (the useful form) is rate-limited whereas the fat-soluble thiamin is absorbed by passive diffusion.[22]

In most instances beriberi heart disease is reversible. The initial changes with thiamin therapy are[10]:

1. Diuresis occurs within 24 to 28 hours.
2. Pulmonary congestion and gallop rhythms disappear
3. Within several weeks, heart size returns to normal.
4. EKG changes may, however, persist for more than a month.

Extraocular palsies accompanying Wernicke's encephalopathy, if present, may disappear within several hours after initial thiamin administration.[7,23] However, peripheral neuropathy can persist or respond slowly to treatment, improving only after 3 to 6 months.[7,23] Many patients with beri-

Continued on page 976

Continued from page 974

beri also are deficient in other vitamins[23] and should be given multivitamins. The situation is illustrated by patient (JD) with beriberi heart disease, peripheral neuropathy, and Wernicke's encephalopathy secondary to alcoholism and malnutrition: analyses reveal the multiple nutritional deficits that can be encountered in association with beriberi (Table 2)[24] which should be treated appropriately.

The biochemical lesions involving thiamin are listed in Table 2. Since the Krebs cycle is ultimately the major source of energy (ATP) for cardiac work, the decrease in available cardiac ATP caused by thiamin deficiency results in cardiac dysfunction and congestive heart failure.

In thiamin deficiency, the heart exhibits no significant morphologic alterations as seen by light or electron microscopy.[25] It has been suggested that cardiac catecholamines are cardiotoxic in thiamin deficiency; this has been refuted.[25]

The cardiomegaly in severe thiamin deficiency is probably secondary to ventricular dilatation rather than hypertrophy, as suggested by the lack of significant differences in the ratio of ventricular weight to body weight in thiamin-deprived rats when compared to normal controls.[26] Coronary blood flow and ventricular performance in thiamin-deficient animals are not significantly different from controls.

Myocardial O_2 consumption at higher levels of systolic blood pressures increased in thiamin-deficient animals. Also, the cardiac ventricular fiber cell suffers from a disturbance in ionic gradients on both sides of the cell membrane thereby altering cellular action potentials.[4]

In the United States, thiamin deficiency is not rare; it is mainly seen in alcoholics.[7,24] In its milder forms it is expressed primarily as neurologic disease; in its severe forms, circulatory impairment intervenes. Because alcohol consumption is on the rise in our youth, the physician should be alerted to an increasing incidence of thiamin deficiency.

Vitamin E

Vitamin E (*a* tocopherol) has been recommended for a variety of diseases in doses ranging from 10 to 50 times the estimated daily requirement.[27] Over 2,000 papers describe uses of vitamin E for almost every disease known to man, including diabetes mellitus (vascular complications), hypertension, rheumatic fever, glomerulonephritis, angina pectoris and coronary heart disease, peripheral vascular disease with intermittent claudication, menstrual disorders, habitual abortion, and male impotence.

Vitamin E deficiency induces muscular distrophy in rabbits, guinea pigs, monkeys, and chicks,[28-31] testicular atrophy in male rats, and cardiomyopathy in ruminants. In primates severely deficient in vitamin E, bone marrow failure and skeletal dystrophy occurred but no cardiac involvement was observed. In man, vitamin E deficiency is rare and has been observed in children with protein-calorie malnutrition, in premature infants, and in malabsorption syndromes.[27,32] The requirement for vitamin E in mammals and birds is heightened when the diet is rich in unsaturated fats.

Use of vitamin E in angina pectoris and various forms of coronary heart disease has been proposed[33] and used on more than 30,000 patients. The weight of evidence is strongly against the effectiveness of this treatment in a diversity of cardiovascular diseases.[27,32]

Nicotinic Acid

Nicotinic acid – like B_6 – participates in fat metabolism.[15] Nicotinic acid deficiency results in pellagra but in unimportant in genesis of vascular disease. In pharmacologic doses of 3 to 6 gm per day, nicotinic acid reduces the circulating levels of cholesterol, β-lipoproteins, and triglycerides;[34,35] nicotinamide has no such hypolipidemic effect. Pronounced flushing of the skin which decreases after chronic administration is common. Heartburn and

Continued on page 980

Continued from page 976

peptic ulcer, jaundice and other abnormalities of liver function, hyperuricemia and clinical gout, mild carbohydrate intolerance, and various neuropsychiatric disturbances ranging from "nervousness" to precipitation of psychosis have been occasionally reported[36] after prolonged administration of nicotinic acid. The clinician employing pharmacologic agents to lower circulating lipids should be informed about potential undersirable side effects. However, it is prudent and justifiable, in conjunction with other means of lowering circulating lipids (eg. weight reduction, dietary modification) to consider the use of pharmacologic means as well, especially in patients with coronary artery disease or disorders of lipid metabolism.

Vitamin B_6

In the monkey, B_6 deficiency results in atherosclerosis like that seen in man.[37,38] Although vitamin B_6 is important in the metabolism of polyunsaturated fatty acids, information is scant on just how vitamin B_6 is linked to fat metabolism. Of major interest are debated observations that B_6-dependent enzymes participate in the conversion of linoleic to arachidonic acid—both essential fatty acids.[39,40] In man, atherosclerotic lesions and cardiac disease due to B_6 deficiency or aberration of B_6 metabolism have not been conclusively demonstrated.[39,40]

Conclusions

Vitamin deficiency is uncommon as a direct cause of vascular disease; the only vitamin deficiency so implicated is thiamin.

With thiamin fortification of prepared foods and improved food processing, beriberi is becoming much less common, even in the Orient. The remaining reservoir of malnourished individuals and instances of clinical vitamin deficiency seem to be the impressive number of alcoholics[15,24,41,42] in our country. We have few data on interrelationship of latent or subclinical vitamin deficiencies and vascular disease.

References

1. McCollum EV: A History of Nutrition, Boston, Houghton-Mifflin, 1957
2. Baker H, Luisada-Opper AV, Frank O, Feingold S, Leevy CM: Effect of CCl_4 on the vitamin-protein profile of rat liver subcellular elements. Exp Mol Pathol 12:306, 1970
3. Dalgleish LE: Scientific Basis of Medicine Annual Reviews, London, Athlone Press, 1961
4. Huckabee WE: Biochemical Clinics #1: The Heart, New York, Reuben H. Donnelly Corporation, 1963
5. Yanagi K: Beriberi. Nippon Naika Zensho 9:1, 1955
6. Victor M, Adams RD: On the etiology of the alcoholic neurologic diseases with special reference to the role of nutrition. Am J Clin Nutr 9:379, 1961
7. Cole M, Turner A, Frank O, Baker H, Leevy CM: Extraocular palsy and thiamine therapy in Wernicke's encephalopathy. Am J Clin Nutr 22:44, 1969
8. Blankenhorn MA: Effect of vitamin deficiency on the heart and circulation. Circulation 11:288, 1955
9. Rapuzzi G, Rindi G: Influence of increasing heart rate on the alterations of the cardiac ventricular fibre-cells action potentials induced by thiamine deficiency. QJ Exp Physiol 52:277, 1967
10. Tanphaichitr V, Vimokesant SI, Dhanamitta S, et al: Clinical and biochemical studies of adult beriberi. Am J Clin Nutr 23:1017, 1970
11. Inouye K, Katsura E: Clinical signs and metabolism of beriberi patients. In Review of Japanese literature—beriberi and thiamin. Vitamin B Research Committee of Japan, Tokyo, 1965
12. Jeffrey FE, Abelmann WH: Recovery from proved Shoshin beriberi. Am J Med 50:123, 1971
13. Wagner PI: Beriberi heart disease, physiologic data and difficulties in diagnosis. Am Heart J 69:200, 1965
14. Blankenhorn MA: The diagnosis of beriberi heart disease. Ann Intern Med 23:398, 1945
15. Baker H. Frank O: Clinical Vitaminology: Methods and Interpretation. New York, Interscience, 1968
16. Baker H: Discussion in Sauberlich HE: Biochemical alterations in thiamine deficiency — their interpretation. Am J Clin Nutr 20:543, 1967
17. Brin M: Erythrocyte transketolase in early thiamine deficiency. Ann NY Acad Sci 98:528, 1962
18. Baker H, Frank O: Vitamin analyses in medicine. In Goodhart RS, Shils ME (eds): Modern Nutrition in Health and Disease. Philadelphia, Lea and Feibeger, 1973, p 523

Continued on next page

Continued from previous page

19. Boissier JR, Tillement JP, Vjarc P, et al: Quelques aspects de la toxicité et du métabolism de la thiamine adminstrée à fortes doscs. Anesth Analg (Paris) 24:515, 1967
20. Thiamine Deficiency, Biochemical lesions and their clinical significance. Ciba Found, Study Group No. 28. Boston, Little, Brown, 1967
21. Akbarian M, Yankopoulos NA, Abelmann WH: Hemodynamic studies in beriberi heart disease. Am J Med 41:197, 1966
22. Thomson AD, Frank O, Baker H, et al: Thiamine propyldisulfide: absorption and utilization. Ann Intern Med 74:529, 1971
23. Fennelly J, Frank O, Baker H, et al: Peripheral neuropathy of the alcoholic: I, Aetiological role of ancurin and other B-complex vitamins. Br Med J, 2:1290, 1964 2:1290, 1964
24. Baker H, Frank O: Vitamin status in metabolic upsets. In Bourne GH (ed): World Review of Nutrition and Dietetics, vol. 9. New York, Karger, Basel, 1968, p 124
25. McCandless DW, Hanson C, Speeg KV Jr, et al: Cardiac metabolism in thiamin deficiency in rats. J Nutr 100:991, 1970
26. Phornphutkul C, Gamble WJ, Monroe RG: Ventricular performance, coronary flow and myocardial oxygen consumption in rats with advanced thiamin deficiency. Am J Clin Nutr 27:136, 1974
27. Olson RE: Vitamin E and its relation to heart disease. Circulation 48:179, 1973
28. Dinning JS, Day PL: Vitamin E deficiency in the monkey. I. Muscular dystrophy, hematologic changes, and the excretion of urinary nitrogenous constituents. J Exp Med 105:395, 1957
29. Mason KE, Horwitt MK: Tocopherols X effect of deficiency in animals. In Sebell WH Jr, Hanes RS (eds): The Vitamins, vol. 5. New York, Academic Press, 1972, p 165
30. Swahn O, Thafvelin B: Vitamin E and some metabolic diseases of pigs. Vitam Horm 20:645-57, 1962
31. Fitch CD: Experimental anemia in primates due to vitamin E deficiency. Vitam Horm 26:501, 1968
32. Hodges RE: Vitamin E and coronary heart disease. J Am Diet Assoc 62:638, 1973
33. Shute WE, Taub HJ: Vitamin E for ailing and healthy hearts. New York, Pyramid House, 1969
34. Parsons WB Jr: Treatment of hypercholesteremia by nicotinic acid. Arch Intern Med 107:639, 1961
35. Kritchevsky D: Effect of nicotinic acid and its derivatives on cholesterol metabolism: a review in Gey RF, Carlson LA, (eds): Metabolic Effects of Nicotinic Acid and its Derivatives. Bern, Switzerland, Hans Huber, 1971
36. Mosher LR: Nicotinic acid side effects and toxicity: A review. Am J Psychiatry 126:1290, 1970
37. Rinchart JF, Greenberg LD: Arteriosclerotic lesions in pyridoxinedeficient monkeys. Am J Pathol 25:481, 1949
38. Ibid: Pathogenesis of experimental arteriosclerosis in pyridoxine deficiency. Arch Pathol 51:12, 1951
39. Schroeder HA: Is arteriosclerosis a conditioned pyridoxal deficiency? J Chronic Dis 2:28, 1955
40. Mueller JF: Vitamin B6 in fat metabolism. Vitam Horm 22:787, 1964
41. Leevy CM, Cardi L, Frank O, Gellene R, Baker H: Incidence and significance of hypovitaminemia in a randomly selected municipal hospital population. Am J Clin Nutr 17:259, 1965
42. Leevy CM, Baker H: Vitamins and alcoholism. Am J Clin Nutr 21:1325, 1968

The following articles have been selected by the Publisher from its new book, *Psychopharmacology in the Practice of Medicine,* edited by Murray E. Jarvik, MD, PhD, in the hope that they will have immediate usefulness to our readers who otherwise might not have had access to them.

Psychopharmacology and the Family Physician

John P. Geyman, MD

The past 20 years have seen a growing awareness of the importance of psychologic dysfunction of individuals in our growing population and our increasingly complex society. A continuing redefinition of these problems and varied approaches to their treatment have also been seen. Whether viewed as "mental illness," "psychiatric problems," "stress illness," or "functional disorders," these problems, in aggregate, may well be more frequent and more incapacitating than any other disease or disorder. During this same period, a dynamic growth of psychopharmacology as a discipline has been observed. The introduction of massive numbers of psychotropic drugs, however, has been a source of immense confusion to family physicians and others in primary care who provide initial and often definitive care for a large proportion of patients with these problems.

Concurrent with these changes, and despite impressive advances in biomedical technology, increasing disenchantment, both within and outside medicine, with the problems of overspecialization and depersonalization of medical care has been observed. Social attitudes are changing toward greater concern for what Lewis Mumford (1965) calls "the primacy of the person," whom he sees as devitalized and frustrated by the growth of technology. The pendulum in American medicine is now swinging toward the renaissance of the generalist, particularly in the form of the family physician but also in the form of other kinds of primary care physicians with backgrounds in internal medicine and pediatrics. McWhinney (1975) reminds us that "it is no accident that family medicine is emerging at a time when the interrelatedness of all things is being rediscovered, when the importance of ecology is being focused on one's awareness – when human values are being asserted over technology."

Against this background, this chapter will aim to briefly describe the kinds of "psychiatric problems" occurring in primary care, and what the family physician needs to know about the use of psychopharmacologic agents. A conceptual model will be suggested concerning decision making for the selection and use of psychotropic drugs. Finally, some directions will be discussed for future efforts involving psychiatrists, psychopharmacologists, and family physicians.

Psychiatric Conditions in Primary Care

The precise overall incidence of psychiatric conditions in primary care, together with the incidence of specific entities, has been difficult to ascertain due to the relatively recent development of research in primary care, difficulty in arriving at specific and uniform coding methods, and the fact that patients with these conditions frequently do not fall into discrete diagnostic categories. Earlier studies reported an overall incidence in the range of two to five percent (Densen et al 1960, General Practice 1951, Logan and Cusion 1958, Obstetrics-Gynecology Study 1959, Peterson 1956, Tabenhaus 1955). A subsequent

Continued on next page

Continued from previous page

study of the practices of family physicians in Monroe County, New York, showed that 17 percent of their patients had significant emotional disorders, with women having a "psychiatric problem rate" double that of men, and the highest problem rates occurring in patients with digestive disorders, senility, and ill-defined conditions (Locke and Gardner 1969).

The most recent comprehensive and in-depth study of family practice yet done has been conducted by the Department of Family Practice at the Medical College of Virginia. The health care problems of 88,000 patients presenting to 118 family physicians were studied over a period of 18 months. It is interesting that 90 percent of a total of 383,805 health care problems were contained with 172 descriptive problems, using a coding system for primary care developed by the Royal College of General Practice in England. Table 1 shows the rank order and percentage of total health care problems represented by the 12 most common "mental and behavioral problems" within the 90 percent of these practice profiles (Marsland et al 1976). It can be seen in Table 1 that these 12 problems comprise 5.27 percent of the 383,805 health problems reported. Although this figure probably provides an approximate order of magnitude of these problems, it is clear that more definitive studies are still needed to better delineate the occurrence of psychiatric conditions in family practice.

A recent study by Morrison (1975) has shown that about three-fifths of the annual number of ambulatory, physician visits in the United States are made to general/family physicians, who are responsible for about two-thirds of the estimated 1 billion out-of-hospital acquisitions of prescribed medicines annually. Prescriptions for psychotropic drugs comprise a substantial portion of this total. In a study of drug use in an American community, Stolley and co-workers (1972) have found that psychotherapeutic drugs made up 17 percent of all prescriptions, including "tranquilizers" (7.7 percent), hypnotics and sedatives (3.6 percent), and amphetamines (3.4 percent). In another study of a general medical care clinic, carried out at the University of California at Irvine, 65 percent of all patients were using some kind of psychoactive medication (Gottschalk et al 1971). Further, Balter and Levine (1970) have found that general/family physicians prescribe over 70 percent of all prescriptions for these drugs in the United States.

The family physician's involvement with "psychiatric conditions" is markedly different from the psychiatrist's experience, which frequently involves the management of severe psychiatric disorders in a hospital or crisis intervention setting. The family physician, on the other hand, sees a wide range of less severe and often situational emotional problems in his everyday practice, including anxiety reactions, psychosomatic disorders, depressive reactions, psychoneuroses, grief reactions, hysterical reactions, school problems, sexual and marital problems. Patients with these kinds of problems are frequently troubled in a more general and nonspecific way,

Continued on page 989

Continued from page 983

thereby rendering decisions concerning their care, particularly the use of psychoactive drugs, especially complex. Patients frequently present with a somatic complaint which they hope will be more acceptable (or taken more seriously) to their physicians, while the actual reason prompting the visit may be an unstated constellation of fears and anxieties (Geyman 1971). As a practicing family physician, Ganz (1961) prefers to view emotional disorders in his practice as "stress illness." "In my practice I see very little imagined illness. But I see lots of physical illness, the cause of which lies in the environment, the personality, or the emotional makeup of the patient. To my way of thinking, 'stress illness' communicates a more acceptable and certainly more proper image to patients. It also indicates to the doctor a truer etiology."

Psychopharmacologic Needs of the Family Physician

In view of the frequency of psychiatric conditions in family practice and the family physician's active role in the recognition and management of most of these problems, he clearly must have a broad base of knowledge in practical psychopharmacology. The acquisition and maintenance of this knowledge base has been difficult for a variety of reasons – the confusing array of psychotherapeutic agents, difficulty in adequately evaluating the therapeutic efficacy of these drugs in vivo, the relative lack of training in psychopharmacology in formal medical education at all levels, and lack of adequate emphasis on this subject in the literature generally read by family physicians. For example, it is ironic that such excellent and definitive material as the article "A Usage Guide for Psychoactive Drugs," published in *Diseases of the Nervous System,* failed to reach the large audience of prescribing physicians (Appleton 1971).

From a cognitive standpoint, the family physician must have a current working knowledge of the following areas (Appleton 1971, Norris and Yervanos 1973, Wheatley 1973):

1. Obtaining an adequate data base for the patient's problem
2. Assessment and/or specific diagnosis of problems
3. Kinds of psychiatric problems amenable to psychoactive drugs, including role of drug therapy in larger therapeutic plan
4. Kinds of psychiatric problems for which drug therapy is not indicated
5. Principles of setting specific goals for intervention with psychoactive drugs
6. Major classes of psychoactive drugs:
   a. In-depth knowledge of two effective drugs in each major class, including indications, contraindications, dosage, side effects, toxic reactions, basic mechanism of action, dose-response principles, and potential for dependency, if any
   b. Understanding of anticipated level of efficacy of psychoactive drugs for each major condition
   c. Equivalency between comparable drugs
7. Selection of a particular psychoactive drug with consideration of:
   a. Efficacy
   b. Safety
   c. Incidence, nature, and severity of side effects
   d. Dose form and schedule
   e. Cost
   f. Pitfalls of use
8. Principles of therapy with consideration of:
   a. Important parameters to follow (history, physical examination, and/or laboratory studies)
   b. Frequency of follow-up
   c. Signs and symptoms of toxicity
   d. Management of side effects and toxicity
9. Principles of changing dose or drug:
   a. Understanding of adequate therapeutic trial
   b. Increasing or decreasing drug dose
   c. Discontinuance of drug and/or adding another drug
10. Understanding special circumstances, including:
    a. Pediatric patients
    b. Obstetric patients (ie, placental transfer)
    c. Geriatric patients
    d. Maintenance drug therapy following psychiatric hospitalization
    e. Influence of psychoactive drug on patient's individual life style (eg, occupation)
    f. Drug interaction
11. Feasible and available method for updating knowledge of psychopharmacology
12. Understanding of self as therapeutic agent and awareness of own limitations
13. Indications for psychiatric consultation and/or referral

Table 1. Most Common Mental and Behavioral Problems (118 Virginia Family Physicians)

Rank Order	Problem	Number	Percent of Total
13	Depressive neurosis	5282	1.38
16	Anxiety neurosis	4812	1.25
25	Physical disorders of presumably psychogenic origin	3056	0.80
70	Functional gastric disorders	1132	0.29
73	Tension headache	1083	0.28
83	Debility or fatigue	975	0.25
84	Abuse of alcohol	962	0.25
100	Family relationship problems	825	0.21
114	Schizophrenia	707	0.18
145	Organic psychoses	527	0.14
148	Other psychotropic drugs	520	0.13
168	Malingering	425	0.11
	Totals	20,326	5.27

Continued on next page

Continued from previous page

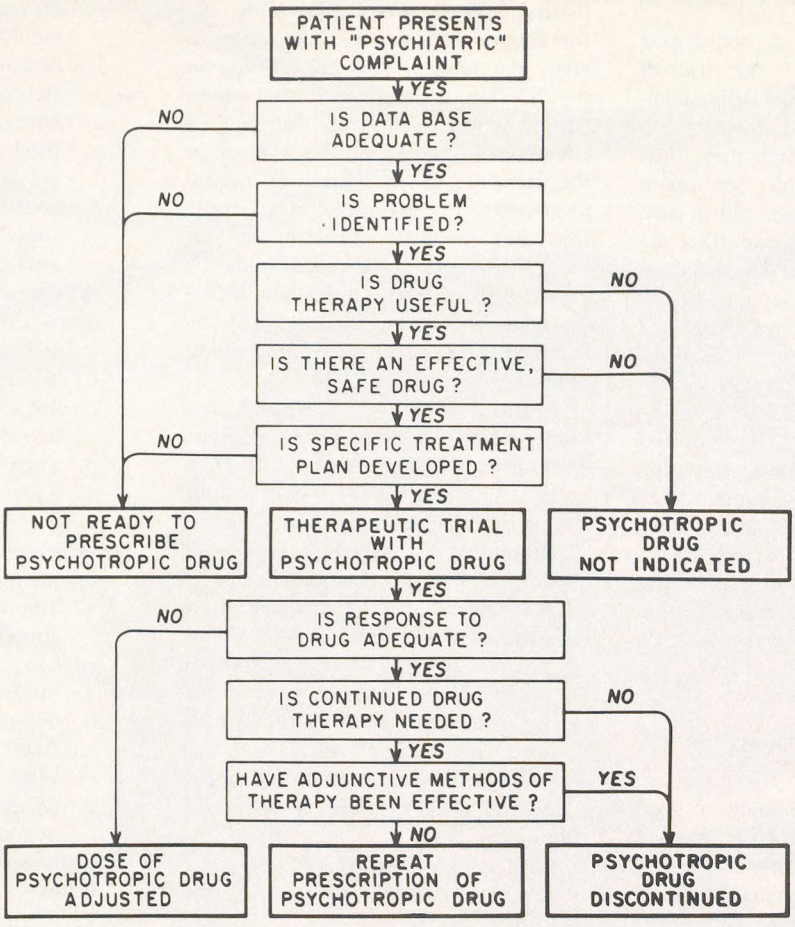

Figure 1. A conceptual model for use of psychotropic drugs

A Conceptual Approach to the Use of Psychoactive Drugs

It is critical that we proceed well beyond the cognitive elements of psychopharmacology if a reasonable level of understanding of the role and use of psychopharmacologic agents in family practice is to be acquired. Intervention with such drugs is only part of a larger therapeutic mileau involving psychosocial factors impinging upon the patient (from both within and outside his family), the doctor-patient relationship, the physician's communication and diagnostic skills, and the physician's own level of self-awareness as a therapeutic agent. Levine (1970) reminds us that it is well documented throughout the scientific community that "the therapeutic response to an administered psychotropic drug is dependent upon pharmacologic as well as nonpharmacologic factors." Tupin and Schuller further point out that "in those clinical situations where psychosocial elements play a significant role, the practitioner with skills in interviewing, history taking, and observation will excel and the patient will benefit. In this situation, the psychologic-mindedness of the physician is the single most important ingredient. One cannot perceive that for which one is blind" (Tupin and Schuller, unpublished data).

Although rapid advances in the technology of psychopharmacology in recent years have certainly led to improved and/or cure for many patients with psychiatric problems, abuse of psychoactive drugs has likewise become a significant problem. These drugs can afford the busy physician with a "crutch," which can adversely affect his understanding of the patient's problems and delay or prevent their resolution. In a paper entitled "The Overmedicated Society," Muller (1972) suggests that physicians can be

Continued on next page

Continued from previous page

both unintelligent and lazy in their excessive use of drug therapy. Based on his studies of repeat prescriptions in family practice in England, Balint and co-workers (1970) expand on this point in these words – "On the basis of our results we think that in reality the repeat prescription (instead of a treatment) is a diagnosis, not of the patient nor of his doctor but of the doctor-patient relationship."

The problem-oriented medical record developed by Weed has become a standard part of practice for many family physicians in recent years. The problem-oriented approach can likewise be applied to nonorganic problems and help the family physician to identify and understand psychosocial problems in his patients and their families. This is an essential first step before any therapeutic intervention can be considered. In this regard, Freyhan (1962) has recommended that disease-oriented therapeutic indications for psychoactive drugs can be exchanged for symptom-directed criteria (ie, "target symptoms" in identified areas of drug treatable. psychopathology). The family physician's task, then, is to identify the patient's problems as specifically as possible, including aspects of the patient's behavior that require treatment. He must then develop a treatment plan that is realistic, meets the individual patient's needs, and involves repeated measurement of therapeutic response so that therapy can be revised or discontinued as necessary. In this connection, it is also useful for the physician to understand which of the following broad objectives is involved by each treatment plan – (a) cure; (b) rehabilitation; (c) relief of symptoms; (d) maintenance of improvement; (e) prophylaxis against recurrent attacks of a cyclic or periodic disorder; or (f) adjunctive to some other treatment such as psychotherapy (Kline and Lehmann 1962).

These ideas are incorporated in a conceptual model for the use of psychotropic drugs (Fig. 1), which form a basis for managing patients with psychiatric or functional problems.

Some Future Directions

Shifting priorities at all levels toward strengthening primary care in medical education and clinical practice are creating new opportunities for understanding the nature and management of common psychiatric conditions. Greater emphasis is being placed on ambulatory care, the provision of more comprehensive and accessible health care services, and viewing the patient as a whole person instead of a disease in his family and community setting. There is every evidence that family practice will continue to develop as a major field in primary care and that student interest will be sustained at a high level. As the academic discipline of family medicine continues to be more sharply defined, continued emphasis on behavioral science can be anticipated as part of that discipline.

The development of academic departments of family practice in most of our medical schools, together with the application of new research methodologies in primary care, should facilitate more intensive and productive study of primary care problems, which have previously been largely overlooked. In the area of psychopharmacology, it is hoped that active cooperative efforts can be mobilized, involving psychiatrists, clinical pharmacologists, family physicians and their patients in the expansion of research and teaching in this important discipline.

References

Appleton WS: Psychoactive drugs: a usage guide. Dis Nerv Syst 32:607-616, 1971

Balint M, Hunt J, Joyce D, Marinker M, Woodcock J: Treatment or Diagnosis, A Study of Repeat Prescriptions in General Practice. London, Tavistock, 1970, p 145

Balter M, Levine J: The nature and extent of psychotropic drug usage in the United States. Psychopharmacol Bull 5:3, 1970

Densen PM, Balamuth E, Deardorff NR: Medical care plans as sources of morbidity data: prevalence of illness and associated volume of service. Milbank Mem Fund Q 38:48-101, 1960

Freyhan FA: Rationale and indications for biological treatment of psychiatric disorders. In Rinkel M (ed): Biological Treatment of Mental Illness. New York, Page, 1962, p 455

Ganz RH: The family physician as counselor. Physician's Manage 9:68, 1961

General Practice, Internal Medicine and Pediatrics National Disease and Therapeutic Index. Flourtown, Penn, Lea Associates, 1951

Geyman JP: The Modern Family Doctor and Changing Medical Practice. New York, Appleton-Century-Crofts, 1971, p 149

Gottschalk LA, Bates DE, Fox RA, James FM: Psychoactive drug use: patterns found in samples from a mental health clinic and a general medical clinic. Arch Gen Psychiat 25:393, 1971

Kline NS, Lehmann H: Handbook of Psychiatric Treatment in Medical Practice. Philadelphia, Saunders, 1962, p 31

Levine F: Drug metabolism and therapeutic response. Psychopharmacol Bull 6:3, 1970

Locke BZ, Gardner EA: Psychiatric disorders among the patients of general practitioners and internists. Pub Health Rep 84:167-173, 1969

Logan WPD, Cusion AA: Studies on medical and population subjects, No. 14. In Morbidity Statistics from General Practice, Vol. 1 London, His Majesty's Stationery Office, 1958

Marsland DW, Wood M, Mayo F: Data for the rational development of curriculum and patient care systems in family practice. J Fam Pract, 1976

McWhinney IR: Family medicine in perspective. New Engl J Med 293:180, 1975

Morrison N: Prescription Drugs and the Physician: An Analysis of the Acquisition, Use, Type and Cost of Prescribed Medicine in the United States. New York, Appleton-Century-Crofts, 1975

Muller C: The overmedicated society: forces in the marketplace for medical care. Science 176:488, 1972

Mumford L: The Transformations of Man. New York, Harper & Row, 1965

Norris AS, Yervanos N: Pharmacologic agents. In Conn HF, Rakel RE, Johnson TW (eds): Family Practice. Philadelphia, Saunders, 1973, pp 248-258

Obstetrics-Gynecology Study, American Academy of General Practice, Kansas City, Mo, 1959

Peterson OL: Analytical study of North Carolina general practice, 1953-54. J Med Educ (Suppl) 31:12, 1956

Stolley PD, Becker MH, McEvilla FD, Lasagna L, Gainor M, Sloane LM: Drug prescribing and use in an American community. Ann Intern Med 76:537, 1972

Tabenhaus LJ: Study of one rural practice, 1953. GP 12:97-102, 1955

Tupin FP, Schuller AB: The pathophysiology of psychosomatic disorders: psychosocial aspects of GI function. In Bolt RJ, Palmer PES, Ruebner B. Watson DW (eds): The Digestive System. New York, John Wiley (in press)

Wheatley D: Psychopharmacology in Family Practice. London, William Heinemann Medical Books, Ltd, 1973, pp 12-15

Continued on page 994