

Chief Complaint of Fatigue: A Prospective Study

John Kirk, MD; Richard Douglass, MD; Eugene Nelson, DSc; Johnathan Jaffe, MD; Anthony Lopez, MD; John Ohler, MD; Chase Blanchard; Robert Chapman, MD; Gregory McHugo, PhD; and Kevin Stone
Hanover, New Hampshire, Boston, Massachusetts, Philadelphia, Pennsylvania, and Atlanta, Georgia

The Dartmouth COOP Project, a primary care research network, conducted a prospective study of patients presenting to 28 primary care practices with a chief complaint of fatigue. Data were gathered on fatigue status, associated systems, health status, and origin of fatigue. Fatigue patients were demographically similar to nonfatigue patients but had significantly worse physical and mental health at study intake. Sixty-three percent of physicians and 52% of patients rated fatigue origin as primarily physical ($\gamma = 0.48$, $P < .05$), but in 41% of cases, physicians indicated there was substantial interaction between physical and psychological factors. Only two factors—depression and anxiety—separated fatigue of physical origin from fatigue of psychological origin. Clinicians must thoughtfully evaluate fatigue's often multiple causes and communicate their understanding of those causes to the patient to gain support for a reasonable treatment regimen. J FAM PRACT 1990; 30:33-41.

Primary care physicians frequently encounter patients with the chief complaint of fatigue. In the United States fatigue is the seventh most common reason for visiting an internal medicine practice, accounting for more than 10 million visits and more than \$300 million in medical care costs.¹ Although fatigue is a universal reaction affecting everyone at one time or another, when it is prolonged or severe, the primary care physician is often asked to find a cause and devise a cure.

The subjective nature of fatigue has made it difficult to assess in the office and to study in the field. A comprehensive review of the literature shows a very limited number of studies, all with serious methodologic flaws. In 1944 Allen² of the Lahey Clinic described 300 cases of fatigue, concluding from his chart reviews that 20% were caused by a "physical disorder" and 90% by a "nervous state of one kind or another." Not described were the manner of case selection, the duration of the fatigue, the patients' demographic profiles, or the extent of follow-up. Allen advises that a nervous origin should be expected if

the fatigue is variable from day-to-day, worse in the morning, of especially long duration, or associated with a multiplicity of symptoms.

In 1971 Gilbert³ published original data distinguishing psychological from physical fatigue in a series of family practice patients. He concluded that 60% of the cases were psychiatric in origin and 40% were physical.

In 1980 Morrison⁴ contributed more patient-based data, describing 176 patients coded as "fatigued" in the encounter-based Family Medicine Information System at the University of Colorado. Basing diagnostic categorization on his own retrospective chart review, he concluded that physical causes explained 39% of the cases, whereas 41% were psychological, and another 12% were due to "mixed causes." The only feature of fatigue that differed among these groups was its duration, with physical cases having a shorter average duration of symptoms. This study provided a more solid foundation for understanding fatigue as it appears in primary care. Morrison's data, however, are limited by the lack of a standard definition of fatigue, by absence of entry criteria or subsequent diagnostic categorization, and by insufficient follow-up.

In a more recent article, Solberg⁵ outlines a set of decision rules for physicians to use in evaluating symptoms and estimating the prognosis of fatigue in primary care patients. He emphasizes the difficulty of the clinical challenge and the importance of the physician-patient relationship in achieving a favorable outcome. In a summary he comments on the current status of the literature in the field by stating, "Not least of the challenges is for us

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From the Department of Community and Family Medicine, Dartmouth Medical School, and the Psychology Department, Dartmouth College, Hanover, New Hampshire; the Department of Community Health, Tufts University School of Medicine, Boston, Massachusetts; the Hitchcock Clinic, Bedford, New Hampshire; the Hahnemann College of Allied Health Professions, Philadelphia, Pennsylvania; and the American Medical International, Atlanta, Georgia. Requests for reprints should be addressed to John Kirk, MD, Department of Community and Family Medicine, Dartmouth Medical School, Hanover, NH 03756.

to document and study the presentation, evaluation, and prognosis of lassitude so that future discussions can be based on more specific facts."

In 1981, when this prospective 1-year study of fatigue was developed, the goal was in effect to respond to Solberg's comment by having patients describe their fatigue in greater detail; by measuring its impact on their lives, their functional status, and their use of health services; by measuring its duration and variability over longer periods; and by trying to establish demographic and clinical definitions that could help physicians more readily sort the chief complaint of fatigue into diagnostic categories. This paper summarizes the results of this study. A companion article⁶ focused on the comparison of the chief-complaint-fatigue cohort with a group of patients reporting fatigue on a questionnaire but not to their physicians. That paper also described the course of fatigue over time and its impact on patients' lives and on their use of health resources.

METHODS

The research was conducted in 28 practices—staffed by 65 primary care physicians and 31 physician assistants and nurse practitioners—that are members of the Dartmouth Primary Care Cooperative Information Project (COOP).^{7,8} This project is a voluntary research and data network that includes medical practices in Maine, New Hampshire, and Vermont.

Study Design

The design was an observational prospective study of 1 year's duration. Patient entry began in the summer of 1981, and follow-up continued for 1 year.

COOP practitioners (physicians, nurse practitioners, and physician assistants) identified fatigue patients among patients presenting for office visits of *all* types (eg, general examination, chronic problem follow-up, etc). The patients selected for the study met the following criteria:

1. Aged 18 years or older
2. Fatigue present 1 month or longer
3. Fatigue being the chief complaint or major problem expressed by the patient to the provider during the visit, regardless of the original reason for the appointment

Patients meeting these criteria were included regardless of whether the provider thought he or she knew the cause of the fatigue at the index visit and regardless of whether the problem of fatigue had been presented previously to the provider.

Each of the 28 participating practices contributed about six patients to the study. Many of the fatigue patients were identified from among a series of 20 consecutive adult patients presenting to each COOP practice during the course of another study. In that study (describing functional health status of patients visiting the primary care practices), patients completed an extensive health questionnaire at the index visit, which included the initial information needed for the fatigue study. By enrolling as many fatigue patients as possible from among the 1227 patients being entered in that study, data collection efforts were minimized and comparative information was available on a control group of nonfatigued patients visiting the practices. Approximately one half of the fatigue cohort was identified during this joint intake period. The rest were identified by the practitioners in the weeks ahead as visiting patients met the inclusion criteria for the study until the enrollment goal of 154 fatigue patients had been reached. The denominator of total number of patients visiting the practices during this enrollment period is not available; hence, the prevalence of chief-complaint-fatigue patients in the practices cannot be calculated.

At the index visit the fatigue patients filled out a health status questionnaire described in a previous publication.⁹ The health status scales used had been developed by Ware and his colleagues at the Rand Corporation.¹⁰⁻¹² The Rand measures are subdivided into physical health scales (eg, self-care limitations, mobility limitations, physical ability, role activity limitations) and mental health scales (anxiety, depression, and vitality). The questionnaires were completed by patients in about 10 minutes either while waiting to see the clinician (during the initial intake period of the 1227 consecutive visiting patients), or after seeing the clinician (the latter intake period).

Follow-up data on study patients were collected over a 1-year period. Six weeks after the index visit, patients were contacted by mail to (1) provide them with a health calendar diary to serve as a memory aid for recording disability days, utilization, and charges for medical services, and (2) encourage their continued cooperation in the study.

At 3, 6, and 12 months after the index visit, patients were interviewed over the telephone by trained interviewers. Interviews included repeat administrations of the Rand health status measures gathered at intake, a battery of problem-specific questions on the character of fatigue, and information on the use of and charges for medical care.

During the 3-month telephone follow-up, patients were asked to classify the cause of their fatigue by answering the following question: "Why do you think you were/are bothered by feeling tired or fatigued?" The verbatim records of their responses were classified into physical or psychological categories by a physician member of the

TABLE 1. FOLLOW-UP ATTRITION

Study Phase	In-Study No. (%)	Lost at This Phase			
		No. (%)	Refused	Not Reached	Other
Met entry criteria	154 (100)				
3-month interview	103 (67)	51 (33)	26	19	6
6-month interview	84 (55)	19 (12)	12	7	0
12-month interview	83 (54)	1 (1)	0	1	0
Total	83 (54)	71 (46)	38	27	6

COOP research staff, with reactions to stressful situations categorized as psychological.

At the end of the 1-year study period, COOP physicians reviewed their fatigue patients' charts to classify the fatigue as either physical or psychological in origin. (Although some of the study patients were enrolled by physician assistants and nurse practitioners in the practices, the physician of record in each practice was responsible for the classification, consulting with the physician assistant or nurse practitioner as necessary.) A secondary cause of the fatigue was also reported if the physician felt that a secondary cause contributed significantly to the fatigue. A clinical diagnosis was specified for both primary and secondary causes.

Patients Lost to Follow-up

At the index visit, 154 patients met entry criteria for chief complaint of fatigue. Interviews were completed on 103 patients at 3 months, 84 patients at 6 months, and 83 patients at 12 months (Table 1). In the final classification of patients into physical and psychological categories, 12 more were lost, leaving 71 patients for the analyses that depended on this classification.

Most attrition occurred between intake and the interview 3 months later: 26 patients refused the interview, 19 could not be reached, and 6 were excluded from follow-up for other reasons such as death or incomplete data. Between the 3-month and 6-month interviews, another 19 patients were lost because they either could not be contacted (7) or refused to continue in the study (12). By the end of the third interview at 12 months, there were complete follow-up data for only 83 of the original cohort of 154 patients.

Because of the attrition problem encountered in collecting follow-up data on fatigue patients (ie, 83/154, for a 1-year response rate of 54%), extensive analysis was conducted to determine whether patients with complete follow-up data differed from those lost to follow-up. This analysis was done by comparing intake values of "completers" (ie, patients followed successfully for 1 year) with those of "dropouts" (ie, patients lost to follow-up). Chi-

square and *t* tests were used for discrete and continuous data, respectively.

COOP researchers compared completers with dropouts on five demographic variables—age, sex, education, marital status, employment status—and found two significant differences ($P < .05$). Completers were more likely to be married, and they enjoyed higher rates of employment. When completers were compared with dropouts on six different measures of physical health status, no significant differences were detected. When the two groups were compared on four measures of mental health, however, all measures showed that the dropouts had poorer emotional health than the completers—more anxiety, more depression, worse overall emotional health ($P < .05$). It is important to note that there were no differences between groups on severity of fatigue at baseline, that is, mean vitality scale scores were identical, with both groups averaging 12.44.

In summary, the results suggest that dropouts tended to be similar to completers with respect to age, sex, education, physical health status, and initial level of fatigue. Dropouts probably had more troubled lives overall, however, since they had worse emotional health, higher unemployment rates and higher rates of divorce or separation. The bias introduced by this problem would tend toward underestimating the impact of fatigue on health and use of medical care as well as its psychological origin.

Analysis

After coding and editing, fatigue data were analyzed by time—at 3, 6, and 12 months following the index visit—and by patient subgroup, eg, physical vs psychological origin of fatigue, or patients with fatigue vs a sample of all COOP patients. Contingency tables with chi-square testing were used to test statistical significance for discrete variables, whereas analysis of variance and covariance was used for continuous variables. The gamma statistic was used to measure the degree of association between discrete variables.

TABLE 2. DEMOGRAPHICS OF COOP PATIENTS AND FATIGUE PATIENTS

Variable	COOP Patients* (n = 147)	Fatigue Patients† (n = 154)
Age (mean years)	48.3	51.5
Sex (percent female)	67	70
Education (mean years)	12.7	12.1
Occupational status (percent now employed)	49	46
Marital status (percent married)	69	68

*COOP patients: A one-eighth random sample of 1227 consecutive patients presenting to the COOP Practices.
†Fatigue patients: The 154 patients meeting entry criteria as "fatigue patients."

RESULTS

Demographic Profile

Table 2 displays a comparison of the demographics of the 154 patients who initially complained of fatigue and a one-eighth random sample of the 1227 adult patients visiting the 28 COOP practices but not offering fatigue as their chief complaint. The similarity of the two groups on all demographic factors indicates that in this study the patients presenting with the chief complaint of fatigue reflect the demographic profile of the population cared for in the COOP primary care network.

Health Status of Fatigue Patients at Intake

The Health Status Scale, based on measures developed by the Rand Corporation and included in the health questionnaires completed by patients at the time of the initial office visit, shows the health status of fatigue patients at intake to be significantly lower than that of the random sample of adult COOP patients (Table 3). The vitality scale was clearly discriminating, with fatigue patients scoring much lower than nonfatigue patients, as might be expected (12.6 vs 16.4, $P < .001$). Fatigue patients also tended to have significantly greater anxiety and depression, worse physical ability, and more role activity limitations ($P < .001$).

Physical vs Psychological Causes of Fatigue

Table 4 shows how the COOP physicians classified the causes of fatigue into physical and psychological categories, based on the 71 fatigue patients who completed the 12-month follow-up and whose physicians rated the origins of the fatigue. The physicians classified 63% of the cases as primarily physical in origin and 37% as primarily psychological. Fatigue of purely physical or psychological

TABLE 3. HEALTH STATUS OF ALL COOP PATIENTS VS FATIGUE PATIENTS AT INTAKE

Health Status Scale (range)	COOP Patients* (n = 147)	Fatigue Patients† (n = 154)
Mobility (2-4 with 4 = high mobility)	4.0	3.9
Physical Ability (4-12 with 12 = high ability)	10.4	9.2‡
Role Activity Limitations (3-6 with 6 = no limits)	5.5	4.9‡
Anxiety (5-30 with 30 = least anxiety)	21.4	18.9‡
Depression (4-18 with 18 = least depression)	14.9	13.5‡
Vitality (4-24 with 24 = high vitality)	16.4	12.6‡

*COOP patients: A one-eighth random sample of 1227 consecutive patients presenting to the COOP practices.
†Fatigue patients: The 154 patients meeting entry criteria as "Fatigue Patients."
‡ $P < .001$

origin, however, was less frequent, with 41% purely physical and only 18% purely psychological. The remaining 41% were attributed to a mixture of physical and psychological factors.

The fatigue patients themselves classified their own fatigue as physical in origin only 52% of the time, and as psychological in the remaining 48%. In light of the common belief among physicians that patients are reluctant to accept psychiatric diagnoses, it is interesting to see patients attributing their fatigue to psychological causes more often than do their physicians.

Table 5 shows the relationship between the physician and patient classifications. In 45 of the 71 cases (63%) the

TABLE 4. PHYSICIAN-RATED CAUSES OF FATIGUE IN 71 PATIENTS

Cause of Fatigue	Number	Percent
Physical only	29	41
Mixed		
Physical primary, psychological secondary	16	22
Psychological primary, physical secondary	13	18
Psychological only	13	18
Total primarily physical (physical only and physical primary)	45	63
Total physical (primary or secondary, physical only and mixed)	58	81
Total primary psychological (psychological only and psychological primary)	26	37
Total psychological (primary or secondary, psychological only and mixed)	42	59

Note: This table is based on 71 fatigue patients who completed the 3 rounds (12 months) of interviews and whose physicians rated the origin of the fatigue.

TABLE 5. PRIMARY CAUSES OF FATIGUE AS RATED BY PHYSICIAN AND PATIENT

Patient Rating of Cause	Physician Rating of Cause		Row Total
	Physical	Psychological	
Physical	28	9	37 (52%)
Psychological	17	17	34 (48%)*
Column Total	45 (63%)	26 (37%)‡	71

NOTE: This table is based on the 71 fatigue patients who completed three rounds (12 months) of interviews and whose physicians rated origin of fatigue. *Includes 9 patients who attributed their fatigue to "work-related causes." †Includes 16 patients with a secondary psychological cause as determined by physician. ‡Includes 13 patients with a secondary physical cause as determined by physician.
 Measure of association: $\gamma = 0.48$
 Measure of significance: $\chi^2 = 0.03$

TABLE 6. MOST COMMON PHYSICAL CONDITIONS OF FATIGUE PATIENTS, LISTED BY RANK (N = 71)

Rank Type	Number	Percent of Total
Physician-Reported		
Cardiovascular	14	19
Respiratory	11	15
Musculoskeletal	10	13
Medication-related	6	8
Diabetes	4	5
Gastrointestinal	3	4
Obesity	3	4
Anemia	3	4
Postpartum	3	4
Other	18	24
Total	75*	100
Patient-Reported		
Cardiovascular	6	14
Respiratory	5	11
Anemia	4	9
Musculoskeletal	4	9
Old age	3	7
Gynecologic	3	7
Postpartum	1	2
Pregnancy	1	2
Medication-related	1	2
Other	16	37
Total	44	100

NOTE: This table is based on the 71 fatigue patients who completed the 12-month follow-up, and for whom a physician classified the origin of fatigue. *Number of conditions exceeds number of patients because both primary and secondary physical causes are included.

physician and patient classifications agreed. The degree of this association is moderately strong and statistically significant ($\gamma = 0.48, P < .05$). If secondary causes reported by physicians are accepted as agreement when they coincide with patients' reports, the rate of agreement is 83%.

In Table 6 are listed the specific physical conditions reported by physicians and patients as causes of fatigue. The physician list includes those physical conditions reported as either a primary or secondary cause in the 58 patients with a physical cause listed as primary or secondary. The patient list is derived from the verbatim responses of the patients to the open-ended question at the 3-month interview: "Why do you think you were bothered by being tired/fatigued?" They were not asked to list secondary causes, though some listed more than one cause. The total number of physical conditions listed by patients was less than that reported by the physicians because five patients reported "don't know"; more considered their fatigue psychological in origin, and relatively fewer listed secondary causes. The two lists demonstrate a strong agreement between physicians and patients regarding the cause of fatigue, possibly because the physicians may have explained suspected causes to the patients. The lists of "other" causes reported by physicians (24%) and patients (37%) included an assortment of medical conditions: menopause, hepatitis, mononucleosis, low potassium, pain, recent surgery, hypothyroidism, etc.

Table 7 is a summary the study's effort to identify demographic, symptom-specific, or health status variables that could help physicians distinguish between physically caused and psychologically caused fatigue. The table is divided by primary cause of fatigue, as classified by the physicians, and hence includes some patients with secondary causes in the other category (see Table 4 for further subclassification). The numbers of patients in the physical only (n = 29) and psychological only (n = 13)

categories were too small for valid comparisons. In only two respects did the two groups show statistically significant differences. The psychological fatigue group at study entry was more depressed and more anxious than the physical fatigue group on the Rand scales ($P < .05$); and the psychological fatigue group also tended to show a wider ranging impact of the fatigue on other areas of life (eg, family life, social life, sex, work, sleep); but these differences fell short of statistical significance.

DISCUSSION

Most prior fatigue research has focused on attempts to separate cases that are of physical origin from those of psychological origin. Physical fatigue, in the judgment of COOP physicians, was more common (63%) than in the earlier studies of Allen (20%), Gilbert (40%), or Morrison (39%). This finding may be due to dropout bias (patients with poorer mental health were more likely to be lost to follow-up) or to a difference in definition of fatigue (COOP

TABLE 7. COMPARISON OF PHYSICAL VS PSYCHOLOGICAL FATIGUE ON SELECTED MEASURES AT STUDY ENTRY

	Primarily Physical (n = 45)	Primarily Psychological (n = 26)
Demographics		
Age (mean years)	53	48
Sex (% female)	67	87
Education (mean years)	12.0	12.1
Marital status (% married)	76	80
Occupational status (% employed)	33	43
Functional status (poor-good)		
Physical ability (4-12 with 12 = high ability)	8.7	9.7
Social role limitations (3-6 with 6 = least limits)	4.8	5.2
Anxiety (5-30 with 30 = least anxiety)	20.9	17.6*
Depression (3-18 with 18 = least depressed)	14.6	12.9*
NOTE: This table is based on 71 fatigue patients who completed the 3 rounds (12 months) of interviews, and whose physicians rated the origin of the fatigue. Classification based on primary cause identified. *P < .05		

researchers included all cases of 1 month or greater duration, even if the cause seemed apparent at the time of entry into the study). COOP researchers felt that having the patient's primary physician judge the cause of the patient's fatigue, based on retrospective chart review plus overall knowledge of the case, would provide a reasonable standard of diagnosis for a problem for which no clear-cut reference standard exists.

One study goal was to identify demographic, clinical, or other fatigue-specific factors that would separate physical from psychological fatigue. Of all the variables tested, only two—*anxiety* and *depression*—related significantly to fatigue of psychological origin. Here it should be noted that physicians attributed "important secondary factors" to 41% of study cases, which emphasizes the difficulty in ascertaining the primary cause of this often multifactorial symptom. Therefore, it is not surprising that the researchers found only two discriminators of physical vs psychological causes.

The moderate correlation between physicians' and patients' judgments as to cause of fatigue was enlightening. It suggests that a reasonable level of communication exists between physicians and their patients. Clinicians can also be assured that most patients will accept an opinion that fatigue is of psychological origin. Moreover, patients have insight into many of the common sense approaches to treatment, eg, rest and relief from stress.

There are several limitations of this study. Forty-six percent of the entry sample was lost despite concerted

efforts at follow-up. Previous COOP studies had experienced much better success with patients completing the studies. The limited success in this study undoubtedly was due to the extensive record keeping and questionnaire completion that was required of subjects over one full year. It is likely that those lost to follow-up included a higher percentage of psychological-origin cases; hence, the impact of fatigue on health status and resource utilization was underestimated.

Furthermore, in choosing to have the practitioners themselves classify the origins of their patients' fatigue, the research risked not having so uniform a definition of physical vs psychological as if a single researcher had made all the classifications. It was felt, however, that the individual practitioners were able to bring the best clinical insight to the difficult diagnostic task.

CONCLUSIONS

This study's findings suggest that most patients who present fatigue as a chief complaint have physical conditions that contribute to their feeling of fatigue. Attempts to better predict the causes of fatigue from patient demographics or laboratory profiles failed to produce reliable formulas for diagnostic conclusions. The wide range of possible contributing factors, as well as the frequency of multiple contributing factors, results in a difficult diagnostic challenge that requires keen clinical insight and careful assessment if the clinician is to be successful.

It is hoped that this study will provide primary care physicians with a greater understanding of the long duration and pervasive impact of fatigue on patients' own lives. A thoughtful clinical evaluation is necessary to determine the often multiple causes of fatigue. The physician's understanding of these causes should be shared with the patient so that a reasonable treatment program can be formulated by the physician and supported by the patient.

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Commentary

Frank V. deGruy III, MD, MSFM

Mobile, Alabama

Kirk et al correctly point out that fatigue is a common complaint addressed in a scant and defective literature. This is a curious irony that burdens the work of primary care physicians: the conditions we see the most, we understand the least. Sadly, common conditions too often fail to attract the attention of investigators and the generosity of funding agencies. Of course, some of our ignorance is nonspecific, and can be ascribed to the relative youth of primary care medicine as a formal field of inquiry: clinical knowledge is acquired in increments, bit by bit. Thus, it takes many years for the pieces of clinical evidence to coalesce into a coherent edifice of knowledge. Kirk et al deliver to us several welcome bits important to our understanding of the problem of fatigue.

This is the only study in the literature that prospectively investigates fatigue as a presenting complaint in the primary care setting, so this paper stands to give answers available nowhere else. There are two retrospective studies in family practice settings of fatigue as an *encounter diagnosis*,^{1,2} but that phenomenon is distinctly different. An encounter diagnosis of fatigue is made at the end of the visit, after failing to find another explanation for this complaint. Such a diagnosis does not address the issues confronting the physician upon first seeing a patient complaining of fatigue. There have been two other prospective studies of the complaint fatigue, but neither was done in a primary care setting: both were done in fatigue clinics with patients meeting specific referral criteria.^{3,4} As we

approach the particular questions this paper seeks to address, two caveats are in order. First, remember that this study was not done in a pure family practice setting; the Dartmouth COOP network is composed of roughly equal numbers of internal medicine and family practices, limited geographically to the New England area, which as noted below has important implications for our interpretation of the findings. Second, this study suffered an attrition rate of 46%; therefore, these results should be interpreted with respect for their probable bias. Nevertheless, we now have findings where before we had none; let us seek to establish the place and value of these findings.

Perhaps we can best appreciate the significance of this study by considering the questions a clinician asks of any presenting complaint. Stable and definitive answers to all of the following questions indicate a reasonably complete literature in an area.

1. How common is this complaint?
2. Which of my patients are likely to be afflicted? Does it have a predilection for certain groups?
3. What is the etiology? Into what diagnostic entities does this complaint eventually resolve, and how do I make these diagnoses?
4. How debilitating is this condition? What is the functional health status of these patients?
5. What is the health care utilization pattern of these patients?

6. What is the natural history of this complaint?

7. What are my therapeutic options, and how effective are they?

The knowledge base for the chief complaint of fatigue is marked by substantial deficits in every one of these areas. The present study contributes something to each of these questions save the first and last.

How common is this complaint? This study was not designed to assess the frequency of fatigue as a presenting complaint: denominator data from the Dartmouth COOP practices were not available. As noted above, about one half of these are family practices, but interspecialty differences are not discussed in this report. In fact, data from the National Ambulatory Care Survey suggest that fatigue is seen more frequently by general internists than by general practitioners and family physicians, that it is seen more frequently among the older segment of the latter's practices, and that it is being seen less frequently than in years past.⁵⁻⁷ Kroenke et al³ reported that 28% of women and 19% of men in two US Army adult primary care (internal medicine) clinics described fatigue as a "major problem." Jerrett⁸ found an annual incidence of 7.3% of patients with the chief complaint of fatigue in his British general practice. It would appear that we are dealing with a common presenting complaint; an independent report of simple frequency data for this complaint by specialty would be a welcome addition to the literature.

Who is affected? Previous studies in family practices,^{1,2} primary care internal medicine clinics,³ and a county health center⁹ all report that patients with fatigue are, with a few exceptions,¹ not appreciably different from their unaffected counterparts by age, sex, race, education, employment status, or marital status. Kirk et al corroborate this finding. Morrison,¹ in investigating family practice patients with the encounter diagnosis of fatigue, found more women, more single men, and more single women than expected.

What causes this complaint, and how do I diagnose those causes? Following the precedent of several previous studies of fatigue,^{1,2,8-12} Kirk et al dichotomize the causes of fatigue into physical and psychological categories. They report a higher rate of physical causes (63% primarily physical, 81% with at least a physical contributory factor) than the previous studies, and offer helpful speculation about the reasons for their observed difference. A particularly valuable contribution is the reported correlation ($\gamma = 0.48$) between physicians' and patients' judgments as to cause of fatigue. Perhaps the most interesting finding in this study is the greater willingness of patients

than their physicians to ascribe a psychological cause to their complaint.

The primary care literature would be well served by future studies that follow the lead of Manu et al⁴ and Kroenke et al³ in refining the diagnostic categories, including psychiatric diagnoses, into which these patients are classified, and systematically testing their patients for these diagnostic possibilities. Both of these studies, which were done in fatigue clinics, subjected their patients to an extensive standardized evaluation. This design allows a more careful estimate of the value of particular tests than when the testing is done on the basis of the personal criteria of the encounter physician. As things now stand, the literature is inconsistent and the data are insufficient regarding the value of laboratory testing in the search for a physical etiology of fatigue.^{1,2,3,8} Manu et al⁴ used the Diagnostic Interview Schedule to make DSM-III (*Diagnostic and Statistical Manual of Mental Disorders*, ed. 3) mental diagnoses on their patients, and found 154 DSM-III diagnoses for 74 patients, or nearly two per patient. The complaint of chronic fatigue was attributed to a psychiatric diagnosis, most often depression, in 66% of these patients. One can only speculate about the distribution of psychiatric diagnoses in fatigued primary care patients. While the Dartmouth study shows us what we actually diagnose, it is critically important to know also what we could or should diagnose. It would be quite possible to construct a study in which both outcomes are measured and compared in a single group of patients.

What are the functional consequences of fatigue? The COOP results are extremely valuable in demonstrating to us that fatigued patients are moderately impaired in their functional capacities, as measured by the Rand scales. This finding corroborates in a different setting and with a different instrument the findings of Kroenke et al,³ who showed substantial impairment in functional health in their patients as measured by the Sickness Impact Profile.

What is the health care utilization pattern of these patients? In a companion paper derived from the same cohort of patients,¹³ Kirk et al report increased utilization of health care resources for patients with the chief complaint of fatigue: compared with control patients without fatigue, these patients showed a nearly threefold increase in annual charges for ambulatory medical services, a twofold increase in charges for prescription medications, and a twofold increase in hospital admission rates. The only other utilization data come from Valdini et al,⁹ who studied patients in a community health clinic with a Rand Index of Vitality score of 14 or less—nearly one half their patients—and observed that this group had 50% more office visits in the following year than their nonfatigued counterparts. Taken together, these findings suggest that

the chief complaint of fatigue foretells heavy health care resource utilization; further corroboration of this finding would be helpful.

What is the natural history of this complaint? This study's prospective, longitudinal design, with its inherent problem of attrition, is also one of its major strengths. We learn from the companion paper referenced above¹³ that the subjects of this study had been fatigued for an average of 1½ years before their index visit, and that after 1 year of follow-up, one half of them were still fatigued. Valdini et al⁹ found that 42 of 73 (59%) patients initially fatigued were still fatigued after 1 year, while 15 of 72 (21%) initially nonfatigued patients became so in the ensuing year.

The present study gives a number of physical diagnoses thought to be causative of the fatigue, but we have no information on the natural history of the complaint when caused by these particular entities. This valuable information would be hard to come by, requiring a large cohort of carefully evaluated and closely followed patients.

How do I treat patients with this chief complaint? This issue is not addressed in the present study. In fact, it is hardly addressed in the literature at all. There are several papers that offer recommendations for evaluating the complaint of fatigue,¹⁴⁻¹⁷ but there are no controlled clinical trials of therapeutic interventions once the diagnostic process is complete. (For a review of therapies that have been recommended, see Valdini.¹⁷) This lack of information is not surprising, since the prevailing therapeutic rationale is predicated on finding and correcting the underlying disease that is causing symptoms. It follows that there is no such thing as a persistent unexplained complaint, but only conditions for which the diagnostic process is incomplete. Nevertheless, the Dartmouth study persuades us that we will have patients who have fatigue that persists, disables them, and for which we can find no explanation; they will return to our offices repeatedly. What should we do? Should we schedule them for regular visits, or let them return as they feel the need? Should we refer them to a fatigue clinic? Should we prescribe exercise? Sleep? Should we engage in supportive psychotherapy? Family therapy? Are there drugs that help? One of the deepest needs in the field of fatigue research is for clinical trials to help us develop effective management strategies for this difficult primary care problem.

Thus, we can see that there is much to be learned about this complaint. Studies such as the present report should be recognized and appreciated for the gaps they fill in our

edifice of knowledge, and should inspire other investigators to fill the many gaps that remain.

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From the Department of Family Practice, University of South Alabama College of Medicine, 1504 Springhill Avenue, Mobile, Alabama. Dr deGruy is Associate Professor in the Department of Family Practice, University of South Alabama College of Medicine, Mobile.