

A Month of Illness and Health Care Among Low-Income Families

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FAMILY HEALTH has come to denote a specific kind of medical practice whose goal is continuous integrated service to entire families (1). The term also has come to designate a specific teaching program concerned with the medical management of complaints common in families (2-5), as well as to indicate a specific trend in epidemiologic research into family illness (6-8).

This concept assumes that the family is a meaningful unit of health behavior and that each family unit shows specific characteristics in maintaining health, preventing illness, experiencing morbidity, and treating illness. Observations gained in medical practice provide proof for this assumption. The illness of one family member is likely to affect the health and general welfare of all other members and to have social and emotional implications for the total family unit. Ideally, medical diagnosis and treatment are based upon consideration of the patient's family circumstances. Thus, a physician prescribing a regimen would take into ac-

count the ability of the family, and particularly of the mother, to carry out his instructions.

Other observations, however, suggest that family medicine in this sense of the word is the exception rather than the rule. Patients use health services indiscriminately, seeking help from medical as well as nonmedical persons without considering continuity of health care (9-11). As a result, general practitioners, pediatricians, and internists—who are the physicians most likely to offer primary care to whole families—learn only of those illnesses and related events which families bring to the physician's attention and remain uninformed about many other episodes. The physician's knowledge of the health status of his patients' families has been compared to the small part of an iceberg which is visible, the greater part being submerged and hidden (12).

In view of such conflicting judgments, we decided to examine the question: Is it reasonable and appropriate to view the family as a meaningful unit of health behavior? This examination was carried out by investigating illness and health care in a group of families for 1 month.

Method of the Study

This paper is based on intensive analysis of data taken from diaries kept by a selected sample of 78 families. The data were collected in the course of a longitudinal study of health care of low-income urban families. For this longitudinal study, a sample of 500 families with

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The project described was supported by grants from the U.S. Children's Bureau (No. H-74 and H-118), as well as from the Commonwealth Fund.

children was selected from those using the medical emergency clinic of the Children's Hospital Medical Center, Boston, Mass. These families lived within a 3-mile radius of the hospital and had no family physician who regularly looked after the children. The 500 came from a low-income population of relatively young families in downtown Boston who received medical care at various public clinic facilities (13). The median income of the families with a gainfully employed head was about \$4,100; 21 percent of the sample were on welfare; 38 percent of the white families were Catholic.

In the first interview, demographic data as well as answers to attitudinal questions were collected on the 500 families. At the second home interview in the summer of 1964, the mothers were presented with family-health calendars, and instructed to keep them for 4 weeks. The

calendar was a semistructured research instrument which provided space to note each day any medical symptom observed, any upsetting event experienced in the family, and any action taken in response to these symptoms and events (see chart). On days without symptoms, the mothers were instructed to mark "No one sick." The category of upsetting events was included to provide information on the emotional-social aspects of family health and on the problems relating to mental health, which are seldom brought to medical attention (14). The inquiry into the actions taken in response to symptoms and events was designed to collect information on the use of medical facilities and to help distinguish between medically attended and medically nonattended symptoms.

After a 4-week period, during which the interviewers telephoned or visited the mothers

Family health calendar (pages 1 and 2). The 6-page booklet has holes at the top so that the mother can hang it in a convenient place. The interviewer dates the calendar when she arrives at the family's home

Page 1

HOW TO USE YOUR FAMILY HEALTH CALENDAR

1. EACH DAY FOR 4 WEEKS, IN THE SQUARE PROVIDED, KEEP A RECORD OF YOUR FAMILY'S HEALTH.

NOTE:

 - A. When someone is sick, such as. . .
John cold
 - B. If anything out of the ordinary or an upsetting event occurs, such as. . .
Joan cut herself
 - C. What you did about what happened, such as. . .
Gave John nose drops
Called doctor for Joan

(There is a list of some of the things you might note on the back page.)
2. IF NO ONE IN THE FAMILY IS SICK THAT DAY, WRITE DOWN. . .
No one sick
3. YOUR INTERVIEWER WILL GET IN TOUCH WITH YOU IN ABOUT ONE WEEK AND WILL PICK UP THE CALENDAR IN 4 WEEKS.
4. IF YOU HAVE ANY QUESTIONS YOUR INTERVIEWER'S NAME IS _____
AND HER TELEPHONE NUMBER IS _____
5. THERE IS ROOM ON PAGE 6 FOR ADDITIONAL COMMENTS.

Page 2

WEEK #1

NOTE:	SYMPTOMS	UPSETTING EVENTS	ACTION TAKEN
1	SUNDAY	No one sick	
2	MONDAY	Unexpected OOT Co Hpt. rm ready - took Co flight seeing to becher	
3	TUESDAY	Mental Headache	Aspirin I early to bed
4	WEDNESDAY	child's fever	left work early to aspirin bed
5	THURSDAY	No one sick	
6	FRIDAY	Date	
7	SATURDAY		

as a reinforcement measure, the completed calendars were collected. More than 85 percent of the respondents returned usable completed calendars. They described symptoms of illness and other events in nonmedical, and often vague, terms. The data could not be, and were not, checked against other information. Nevertheless, they were indicative of family health as perceived by the mother and represented a more comprehensive description of health than any combination of professional health records. Many minor symptoms and events were reported which otherwise would not have been brought to a physician's attention.

The calendars contained such rich material that, within the limits set by the general research design, transfer of the total material to punchcards for mechanical data processing was impractical. The relevant parts of the data were selected for this purpose, and a randomly picked 15 percent subsample of the calendars was intensively analyzed. The data reported under "Results" were derived from this intensive analysis and refer to 78 families of 156 adults and 254 children. The calendars were kept for a mean duration of 25.9 days. The information the respondents supplied was reviewed and coded in medical terms consistent with standard medical nomenclature. "Running nose" or "stuffy nose" would be coded as "respiratory symptoms"; "fell down" would be coded as "accident."

Results

Sick days and symptoms reported. An examination of the frequency of sick days, that is, days on which the occurrence of a symptom or related event was reported, gives a crude overall view of the illness experienced by the 78 sample families. If the 25.9 mean days actually reported are projected into a 4-week (28-day) period, the interruptions that sickness caused in the lives of the 78 families under study can be seen.

On the average, a symptom was reported on this projected basis on 1 of every 3 days (9.3 days of the 28), and medical help was sought on 1 of every 20 days (1.3 days of the 28). Action was taken in response to symptoms on 7.5 days of the 28. In other words, the daily routine of family life was frequently interrupted by the

occurrence of symptoms and of actions taken for their relief. The overwhelming majority of such events, however, took place within the family circle, and few of them led to contacts with the medical profession.

A different pattern appears when the extent of illness-related interruptions for the family as a unit and for each family member as a separate patient is considered. For this purpose, the concept of a family day and a patient day was used. A family day denotes a calendar day for each family, while a patient day is computed by multiplying the family day by the number of family members. As the data in table 1 show, the two concepts yield different proportions of health-related episodes. For example, a symptom is reported on 1 of every 3 family days but on only 1 of every 13 patient days; a visit to the physician or hospital is reported on 1 of every 30 family days, but on only 1 of every 143 patient days.

Table 2 summarizes the frequency of symptoms within the family during the study month. Ninety-three percent of the families reported one or more symptoms. A symptom was reported, on the average, for one of every two family members. Symptoms were recorded for almost two-thirds of the children, one-half of the mothers, and for one-third of the fathers, but for none of the relatives living with the families.

Table 1. Days during study month with and without symptoms of illness and days on which medical help was sought, as reported by the 78 families in sample

Calendar entries	Family days		Patient days	
	Number	Percent	Number	Percent
Total.....	2, 023	100. 0	10, 625	100. 0
No one sick.....	1, 350	66. 7	9, 820	92. 4
Symptoms of illness.....	673	33. 3	805	7. 6
Medical help sought.....	96	4. 7	103	1. 0
Physician or hospital called.....	8	. 4	8	(¹)
Physician or hospital visited.....	67	3. 3	74	. 7
Someone in family hospitalized.....	21	1. 0	21	. 2

¹ Less than one-tenth of 1 percent.

Categories of symptoms and responses. A more accurate view of family health can be obtained by analyzing the symptoms by categories and actions taken in response to them. For this purpose, both symptoms and actions, as described by the mothers in popular terms, were classified into broad categories (table 3). Respiratory or gastrointestinal symptoms, as well as accidents, could be easily identified on the basis of the information supplied, but three categories of "not specified symptoms" were necessary to accommodate many insufficiently described episodes. The category of "other symptoms" included some serious acute as well as chronic illnesses. Examples of such conditions, 80 percent of which required medical assistance, are breast surgery, other surgery, gallstones, scoliosis, clubfoot, heart attack, chronic urinary tract infection, and pinworms.

The families reported 834 identifiable symptoms; the most frequent were related to respiratory ailments, accidents, and gastrointestinal complaints. Respiratory symptoms accounted for two of every five incidences of illness; three times as many respiratory symptoms as accidents were reported even though this calendar was kept during the summer.

The four main categories of responses (table 3) roughly corresponded to the mothers' judgments of the seriousness of the symptoms. For

Table 2. Families and family members in sample for whom symptoms of illness were reported

Total numbers in study	Number with symptoms	Percent with symptoms
78 families.....	73	93.4
410 persons in these families.....	220	53.7
254 children.....	159	62.6
78 mothers.....	39	50.0
63 fathers.....	22	34.9
15 relatives.....	0	-----

one of every four symptoms, no response was reported. An emotional response (such as an expression of worry, emotional support, or the like) was the only reaction noted for almost 10 percent of the symptoms. For only 12 percent was medical help sought. The ratio of medically nonattended symptoms to medically attended symptoms was seven to one. The mothers were obviously selective in bringing any particular symptom to medical attention.

Different categories of symptoms were likely to cause different kinds of responses. "Other illnesses" and gastrointestinal symptoms were most likely to be brought to medical attention, while nonspecified headaches and contagious diseases were least likely to be brought to a

Table 3. Symptoms of illness and responses reported by the sample

Symptoms by category	Percent of total symptoms (N=834)	Responses (percent of symptoms in category ¹)			
		No response (N=192)	Emotional response (N=78)	Maternal (home) help given (N=151)	Medical help sought (N=97)
Total.....	100	23	9	62	12
Respiratory.....	43	20	1	74	6
Gastrointestinal.....	9	21	-----	53	29
Accidents.....	14	33	4	52	11
Contagious diseases.....	2	20	10	70	0
Not specified fever.....	4	3	3	83	11
Not specified headache.....	5	23	7	82	0
Not specified other symptoms.....	5	26	9	58	19
Menses.....	2	21	36	36	7
Skin symptoms.....	8	42	5	38	15
Emotional difficulties.....	6	20	113	24	2
Other.....	2	10	5	40	80

¹ Based on the total number of symptoms reported in the category, reading horizontally. Percentages may add to more than 100 because of multiple responses.

physician's attention. Not specified fever and headache, as well as respiratory symptoms, were apparently treated almost exclusively with maternal (home) help. Emotional symptoms were most likely to elicit emotional responses. No response was the most frequent reaction to skin symptoms and accidents.

Maternal (home) help, the most frequent response to symptoms, appeared to conform partly to medical practice (table 4). For example, in more than half of the cases, maternal help included the use of medicines listed in the "Physician's Desk Reference." Use of proprietary medicine, that is, of drugs commonly bought over the counter, was infrequent when compared with use of drugs advertised to the medical profession and was restricted to certain categories of symptoms. Home remedies, used in less than one-third of the cases, included rest, rubbing, gargling, bandaging, and other relatively simple procedures. Nonmedical advice referred to that given by relatives or neighbors; no case was reported in which a non-medical practitioner was consulted.

Not specified headache, not specified fever, and contagious diseases were most likely to be treated with medically advertised medicines,

while accident victims were most likely to receive home remedies. Use of proprietary medicines was most common for respiratory symptoms and menses. Aspirin was the most popular medicine with the families; its use was reported on 121 occasions.

The families used medical help selectively (table 4). Hospital admissions represented more than 20 percent of all medical contacts, while in three-fourths of the cases a clinic or physician's office was visited. Telephone calls to physicians, a form of help popular with middle-class families (15), were underutilized by the families in the sample.

Upsetting events. The mothers were asked to report if anything out of the ordinary or an upsetting event occurred. They were given such examples as disagreements, worry about something, a sick relative, a layoff, or change in job. It was assumed that reports on such upsetting events would illuminate the social and psychological aspects of illness, supply information on one aspect of mental health, and contribute to a better explanation of the total health of the family. Implicitly, the assumption was that an association might exist between symptoms and upsetting events and that families in "good

Table 4. Symptoms treated by maternal (home) help and by medical help, as reported by the sample

Symptoms by category	Total number	Percent of symptoms in category ¹ treated by—						
		Maternal (home) help				Medical help		
		Home remedy	Medically advertised medicine	Proprietary medicine	Non-medical advice	Advice	Visit	Hospital admittance
Total.....	834	19	37	6	(²)	(²)	9	2
Respiratory.....	359	11	53	10	0	(²)	5	1
Gastrointestinal.....	77	23	25	5	0	0	14	14
Accidents.....	114	48	1	3	0	0	11	0
Contagious disease.....	20	0	70	0	0	0	0	0
Not specified fever.....	35	11	71	0	0	0	11	0
Not specified headache.....	40	10	72	0	0	0	0	0
Not specified other symptoms.....	43	35	23	0	0	2	16	0
Menses.....	14	0	0	29	7	7	0	0
Skin symptoms.....	66	20	17	0	1	0	15	0
Emotional difficulties.....	46	7	15	0	2	0	2	0
Other.....	20	30	10	0	0	5	45	30

¹ Based on the total number of symptoms reported in the category, reading horizontally.

² Less than 0.5 percent.

health” might be characterized by the absence of both, while families in “poor health” might be characterized by the frequent occurrence of both.

By the definition given in the health calendar, many episodes of family life (the more serious accidents, hospitalizations, and so forth) are likely to be both symptoms and upsetting events. For example, of the total 114 accidents reported as symptoms, 71 (62 percent) were also serious enough to represent upsetting events, while of the 46 emotional symptoms reported, 43 (93 percent) appeared as upsetting events. A clear separation between the last two seems to be impossible because any illness is likely to have its emotional repercussions in proportion to its seriousness and to affect not only the patient, but also other family members—perhaps all of them. Accordingly, upsetting events cannot be assigned to one person; they usually involve several members of a family, and the full extent of this involvement remains unknown.

The episodes reported as upsetting events can be categorized as (a) upsetting events proper, that is, episodes of short duration in which the emerging anxiety is dissolved without obvious efforts at management on the part of the persons involved; (b) crises, that is, episodes of longer duration which provoke intense feelings and in which the anxiety seems to be unmanageable or threatening in the incalculable future; and (c) chronic stress situations, that is, episodes of long duration in which an adjustment type of management of the anxiety is possible and is often achieved (14). A few examples will clarify the categorization. A laceration or other small accident constitutes an upsetting event; a sudden loss of employment or the diagnosis of an unwanted pregnancy represents a crisis; long-lasting unemployment or a pregnancy constitutes chronic stress.

If the 25.9 mean days actually reported are projected into a 4-week period, as was done with the days of symptoms, the interruption that upsetting and related events cause in the lives of the families studied can be assessed. On the average, such an event was reported on 1 of every 5 days. If detailed by categories, an upsetting event was reported on 1 of every 16 days, chronic stress on 1 of every 8 days, and a crisis

on 1 of every 48 days. On only 1 of every 113 family days was medical help sought in connection with such events.

Two-thirds of the families experienced one or more upsetting events during the period reported; one of every eight families experienced chronic stress situations and crises (table 5). Upsetting events and related episodes, when combined, take up 1 of every 5 family days and 1 of every 20 patient days. Table 5, however, computes patient days only for those family members who were named in connection with such episodes and shows the minimal number of patient days. If it is assumed that upsetting and related events affect every member of the family living in the household, the number of patient days increases greatly; in this case, chronic stress situations alone would take up almost 10 percent of all patient days. The indications are that the total impact of upsetting events and related episodes upon family life might be considerably greater than that indicated by the health calendars.

Eighty-five percent of all upsetting events and episodes took place at home, the rest in the neighborhood, and only one event, an accident, occurred at work. When classified by categories, accidents make up more than half of the upsetting events; interpersonal conflicts and medically related events are next in frequency. Of the 28 cases of interpersonal conflicts mentioned, 20 (71 percent) refer to family conflicts

Table 5. Upsetting events, related episodes, and total days reported by the sample

Item	Total number	Percent of total number in item category		
		Upsetting events	Chronic stress situations	Crises
Families in sample	78	68	13	13
Upsetting events and related episodes	159	85	8	7
Family days	2, 023	6	13	2
Patient days ¹	10, 625	1	3	1

¹ Percentages computed only for family members named in the calendar in connection with upsetting events and related episodes.

Table 6. Mean number of reported symptoms and other events in sample families grouped according to number of reported symptoms

Symptoms and other events	Mean number of times reported		
	Group A (20 fam- ilies)	Group B (29 fam- ilies)	Group C (29 fam- ilies)
Symptoms of illness ¹ -----	1. 85	7. 69	18. 79
Upsetting events ¹ -----	. 60	1. 59	2. 66
Chronic stress situations ² -----	0	. 03	. 38
Crises ³ -----	0	. 17	. 21
Episodes when medical advice was sought ³ -----	0	. 24	. 03
Visits to physician or clinic ⁴ -----	. 45	. 69	1. 59
Patient days of hospital- ization ⁴ -----	0	. 03	. 69

¹ Difference between any 2 groups is significant on the 0.05 level or higher.

² Difference between groups A and C is significant on the 0.05 level.

³ No difference between groups is significant on the 0.05 level or higher.

⁴ Difference between group C and either of the other groups is significant on the 0.05 level or higher.

(either between the parents or between a mother and child), while the rest refer to conflicts with neighbors or outside agencies.

Only 1 of every 12 upsetting events elicited enough concern for the mothers to seek medical advice, and these events were accidents. The ratio of the medically nonattended episodes to the medically attended ones is considerably larger for upsetting events than for symptoms. Moreover, only those upsetting events which were etiologically connected with symptoms led to efforts to seek medical help. No upsetting events of independent etiology were brought to medical attention.

Relation of symptoms to events. Almost all 78 families reported symptoms of physical illness, many of them reported upsetting events, and a few reported chronic stress situations and crises. It is of interest whether the four types of recorded episodes tend to be associated within the family, that is, whether the family which reports many symptoms is likely to report many upsetting events, as well as chronic stress and crises. Symptoms and upsetting events are significantly associated (chi-square=5.63; $P=0.02$). So are chronic stress situations and crises

(chi-square=7.58; $P=0.01$), but no other significant relationships appear among these episodes. The suggestion is that two independent factors seem to operate in the incidences of morbid episodes, one establishing a relationship between symptoms and events and the other, a relationship between chronic stress and crises.

Classification by number of symptoms. In view of such associations, the 78 families were classified into three subgroups by the number of symptoms reported. Group A was made up of 20 families reporting 4 symptoms or less, group B of 29 families reporting 5 to 11 symptoms, and group C of 29 families reporting 12 or more symptoms (table 6). The three subgroups showed conspicuous differences in their health status. Group C families reported on the average 10 times as many symptoms and 4 times as many upsetting events as group A families; in contrast, group A families appeared to be conspicuously free of chronic stress and crisis.

The three subgroups showed corresponding differences in their use of medical facilities, the overall use increasing from group A to group C. A relationship apparently exists between the frequency of medically nonattended symptoms and the use of medical facilities. Families experiencing many medically nonattended symptoms were likely to have many emotional and related problems and make more use of medical facilities. The "iceberg effect" of the medically nonattended symptoms, however, may deceive a superficial observer, since the indications are that medically nonattended symptoms are significant in the total health status of the family. The 29 families in group C noted the most medically nonattended symptoms and related events, even though they received the most medical attention.

In addition to the differences in health-related behavior, the three groups of families also differed in social and psychological characteristics. The mean number of children per family significantly increased from group A to group C; in group A the mean was 2.85; in group B, 3.34; and in group C, 3.45. The mother's attitude towards the birth of the first child marked another significant difference; mothers in group A showed the greatest tendency to rate the first child's birth as convenient; this tendency decreased in group B and became least ap-

parent in group C. Finally, the variable of race came close to reaching, but did not reach, the level of statistical significance; white families were underrepresented in group A and overrepresented in group C. It should be noted that the same three variables were found to be similarly associated with the frequency of symptoms and upsetting events.

Such a typology of the families suggests that the different health-related events they reported should not be regarded as discrete unconnected episodes. In a given period, these events apparently comprise a unity of behavior which is related to social factors (such as number of children) and to psychological factors (such as the rating of the convenience of a child's birth).

Discussion

The morbidity data presented here are based on the administration of one research instrument, the health calendar. These data share the general limitations of all health information, namely, that any single research instrument is likely to yield only a partial view of total family health. The calendar, however, does describe the perceived health status of a family and, although subjective, is a source of comprehensive health information not found in usual medical records or obtainable from patient recall. The data compiled from the calendars document the importance of medically nonattended symptoms in the evaluation of the total health of the family unit. Despite the frequently heard claim that low-income families use medical facilities inappropriately and in excess of actual need, our data indicate that only a small percentage of the illnesses experienced by these families result in a medical contact.

In respect to emotional and stressful problems, one may rightly ask whether the families in the sample receive a desirable amount of medical care. The crises and chronic stress situations reported in the calendars included alcoholism and other personality difficulties for which help is available in the community. The families, however, did not indicate that they used the available facilities. The data suggest that while the families may receive adequate care for physical symptoms, they do not seem to receive adequate attention for emotional problems. Perhaps a consultation on emotional upsets and related

events requires a personal relationship with the physician which usually does not exist in public clinic facilities.

Ninety percent of the 126 events reported with sufficient clarity to consider were medically related and occurred in connection with accidents, hospitalizations, and emotional symptoms. Only 12 upsetting events of independent etiology were recorded, or only one event for every six families over the 28-day period. Since the daily life of low-income families represented in this sample must have had its share of the usual strains and stresses, this low number may represent underreporting, or perhaps underperception, of upsetting events. Ten of the events were reported so incompetently that we had to omit them from the detailed analysis. While the mothers could clearly report traditional symptoms of illness, they apparently found it difficult to record and perceive upsetting events; they seemed to be used to living with such events and to regard them as a part of life.

The reliance of low-income families on the facilities of the public clinic for medical care implies that such families receive fragmented, episodic care and that they are treated by practitioners with an incomplete knowledge of the families. As the sample shows, physicians are unaware of many of their patients' less serious physical symptoms (symptoms which comprised nine-tenths of all symptoms experienced by the 78 families studied), and they lack knowledge of almost all emotional and related problems. These conditions represent a broad field of unmet needs which low-income families are unable to satisfy despite the presence of many community agencies.

The lack of a continuous relationship between the family and the physician and its corollary, the physician's imperfect knowledge of family health, are serious obstacles to delivering efficient medical care. Perhaps family-oriented medicine can better overcome these obstacles and more completely fulfill the unmet health needs of these families than medicine oriented to the individual patient.

Summary

During a summer period when a sample comprised of 78 urban families of low income kept family health calendars, illnesses caused

numerous interruptions in family life—on 1 of every 3 days. For only one of every eight symptoms, did the person receive medical care; the rest escaped medical attention.

The families recorded few upsetting events. Presumably, many such events were left unrecorded; perhaps they were not even perceived. The emotional aspects of events and problems were in no instance brought to medical attention. A pattern of association, however, emerged among symptoms, upsetting events, and crises, indicating certain clusters of illness among the families. A threefold typology of the families could be delineated in which each type was distinguished by the frequency of symptoms and upsetting events the families experienced, by the responses they made to such symptoms and events, and by the frequency of use of medical facilities. The frequency of symptoms and upsetting events, as well as the typology of families, was associated with the social and psychological characteristics of the families.

On the basis of illnesses and health-related behavior, the family may be regarded as a meaningful unit which shows specific characteristics in maintaining health and in preventing, experiencing, and treating illness. Further research should contribute to better knowledge and treatment of common medical problems seen in families.

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