

The prevalence of long-term illness in a family practice

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THE elimination or control of the infectious and parasitic diseases once so prevalent, and the implications on the life expectancy of the population, has increased the importance of long-term illness in medical care. In Israel, past trends in fertility and immigration were responsible for the development of an age structure in which an increasing proportion of the rapidly growing population is found among the old.

Kellner and Kanev (1966) calculated that about 70 per cent of all deaths in this country are attributed to chronic degenerative disease. Shavitt and Roseman (1971) estimated that about 40 per cent of all general hospital beds are occupied by patients suffering from long-term illnesses. In one local survey, Yeshurin-Berman (1968) demonstrated that during one month, 21 per cent of attendances at the family physicians involved treatment of long-term illness, and that these constituted 35 per cent of all repeat visits to these physicians.

An effective programme for community medical care demands an awareness of the magnitude and characteristics of the problem, and a knowledge of the many specific disease components. It should also assess the relative status of each disease, and encompass a knowledge of local population variables and associated factors, in order that programmes of prevention may adopt a practical approach.

Family practice provides an ideal setting for the performance of surveys based on these objectives, because prevalence figures can be statistically related to a defined population at risk. During 1972, a retrospective study was performed to assess the prevalence of long-term illness among the total study population, and to serve as a basis for establishing the priorities for programme development within it.

Methods

The study population comprised 1,800 patients who received prepaid medical care from one primary health care team (family doctor, nurse, and social worker), in an urban clinic of the Health Insurance Institute of the General Federation of Labour (Kupat Holim). The medical records of the vast majority of patients were available from the year of immigration into Israel, or from birth, although in a small minority, they were of more recent origin.

A meticulous and comprehensive review of the complete medical record (including copies of hospital, laboratory and specialist reports) of every registered patient was performed, to identify the presence of 20 defined diagnostic categories of long-term illness. In cases where the diagnostic criteria were not sufficiently clear, this review was supplemented by additional interviews, examinations and consultations in order to verify or refute the diagnosis. This procedure was greatly helped by the fact that during the past three years, continuous screening had been performed in the practice, by

regular routine examination of patients who were at risk, by virtue of their age, family history or health state. In accordance with hospital epidemiological morbidity-surveys performed by the Central Bureau of Statistics (1968), the prevalence rate of each illness (per 1,000 registered patients) was calculated on the number of illnesses diagnosed, rather than on the number of patients suffering from these illnesses.

Results

The practice population was composed of 46 per cent males, and 54 per cent females, whose median ages were 38 years and 36 years respectively. Forty-two per cent of the population were born in Israel, 39 per cent in Europe or America, 13 per cent in Asia, and six per cent in Africa. Eleven per cent of the males, and ten per cent of the females, were aged 65 years and over. Ten per cent could be described as of social classes I and II, 68 per cent as of social class III, and 24 per cent of social classes IV and V. All members of the study population were of the Jewish faith.

As shown in table 1, the mean prevalence rate of long-term illness was 568 per 1,000 registered males, and 491 for females. Thirty-seven per cent of all males, and 34

TABLE 1
PERCENTAGE OF PATIENTS WITH DIAGNOSED LONG-TERM ILLNESS, PREVALENCE RATES, AND NUMBER OF DIAGNOSES BY SEX, AGE, AND SOCIAL CLASS (1,800 patients)

	Percentage of patients ⁽¹⁾		Prevalence rates per 1,000 ⁽²⁾		Number of diagnoses ⁽³⁾	
	Male	Female	Male	Female	Male	Female
<i>Sex</i>	37	34	568	491	1.57	1.45
<i>Age groups</i>						
-19	17	15	189	154	1.10	1.05
20-29	26	17	314	200	1.21	1.16
30-39	27	27	298	305	1.08	1.14
40-49	35	40	471	514	1.36	1.28
50-59	46	50	730	773	1.58	1.53
60-65	59	71	868	1,303	1.47	1.82
65+	79	67	1,840	1,239	2.33	1.85
<i>Social class⁽⁴⁾</i>						
Class I and II	24	23	406	301	1.73	1.29
Class III	38	30	582	430	1.55	1.46
Class IV and V	39	44	622	658	1.62	1.49

(1)—Percentage of total practice population in whom long-term illness was diagnosed.

(2)—Prevalence rates per 1,000 registered patients.

(3)—Mean number of diagnoses, per patient suffering from long-term illness.

(4)—In accordance with the classification of the Registrar General in Great Britain.

per cent of females were diagnosed as suffering from long-term illness, and among these, the mean number of illnesses per patient was 1.57 and 1.45 respectively. The percentage of men (17 per cent) and women (15 per cent) suffering from long-term illness under 20 years of age rose progressively with age, to 35 per cent and 40 per cent at age 40-49 years, and to 79 per cent and 67 per cent in those aged over 65 years. These differences are significant at $p < 0.001$. Between the ages of 40-64 years, these percentages were higher among the women, but below and above this age group, this finding was reversed. Among those in whom long-term illness was diagnosed, the mean number of diagnoses per patient rose from 1.10 in males and 1.05 in females of the younger age group, to 2.33 and 1.85 respectively, in those aged 65 years and over.

The lowest percentage of patients with diagnosed long-term illness was found among males and females of the combined social classes I and II (24 per cent and 23

per cent and this rose progressively to 38 per cent and 30 per cent among those of social class III, and to 39 per cent and 44 per cent among those of the combined social classes IV and V. These differences were significant at $p < 0.001$.

In those patients in whom long-term illness was diagnosed, the mean number of diagnoses per female patient rose from 1.29 in those of social classes I and II (combined), to 1.46 in those of social class III and to 1.49 in those of social classes IV and V combined. The highest mean number of diagnoses, was, however, recorded in males of social classes I and II (1.73).

The prevalence rates of 20 specific diagnostic categories, expressed per 1,000 registered patients (table 2), showed that five diagnoses accounted for 27 per cent of all cases of

TABLE 2
PREVALENCE OF LONG-TERM ILLNESS BY SEX AND DIAGNOSIS (RATES PER 1,000 PATIENTS)

<i>Total number of patients</i> <i>Totals—Rates per 1,000 patients</i>		<i>Males</i> 475	<i>Females</i> 474	<i>Total</i> 949
		568.9	491.2	527.2
<i>International code number</i>	<i>Diagnosis</i>			
300-309	Neurosis and personality disorders	82.6	82.9	82.7
531, 532	Ulcers of the stomach and duodenum	75.4	33.2	52.8
410-414	Ischaemic heart disease	68.2	38.3	52.2
400-404	Hypertensive disease	37.1	48.7	43.3
490-493	Chronic bronchitis, emphysema, asthma	38.3	37.3	37.8
592	Nephrolithiasis	52.7	16.6	33.3
250	Diabetes mellitus	32.3	33.2	32.8
240-246	Diseases of the thyroid gland	3.6	53.9	30.6
600	Hyperplasia of prostate	59.9	—	—
710-718	Arthritis and rheumatism	12.0	26.9	20.0
574	Cholelithiasis	8.4	28.0	18.9
330-333 } 340-349 }	Hereditary, familial and other diseases of the central nervous system	15.6	10.4	12.8
290-299	Psychosis	10.8	14.5	12.8
580-584 } 590-599 }	Nephritis, nephrosis, and other diseases of the urinary system	13.2	11.4	12.2
011	Pulmonary tuberculosis	12.0	10.4	11.1
150-163 } 174 } 180-190 }	Malignant neoplasms of other organs	7.2	13.5	10.6
430-438	Cerebrovascular disease	10.8	9.3	10.0
427	Symptomatic heart disease	9.6	9.3	9.4
170, 172	Malignant neoplasm of skin and connective tissue	9.6	7.2	8.3
375	Glaucoma	9.6	6.2	7.8

long-term illness among the study population, namely: neurosis and personality disorders (82.7 per 1,000), ulcers of stomach and duodenum (52.8), ischaemic heart disease (52.2), hypertensive disease (43.3), chronic bronchitis, emphysema and asthma (37.8).

Discussion

The study population (which consisted entirely of Jewish patients) was older than the general Jewish population of Israel where the mean age is 30 years for males, and 31 years for females (Statistical Yearbook of Israel, 1971). Eleven per cent of men, and ten per cent of women in this survey were aged 65 years and over, compared with seven per cent and eight per cent respectively in the general population.

The percentage of males (54 per cent) was higher than among the Jewish population (50 per cent), and the percentages of those born in Africa and Asia (six per cent and 13 per cent respectively), also differed from those in the general population (14 per cent and 12 per cent). These differences precluded the results of this survey from being regarded as representative of the Jewish population, and the results would require standardisation for each of the tested variables, in order to make valid comparisons.

Diagnostic criteria were strictly applied, and only proven cases were included when recording the diagnostic categories. Neurosis, personality disorders and psychosis were included only in those cases where the diagnosis had been made after psychiatric consultation. Radiological confirmation was required for diagnosing ulcers of the stomach and duodenum, chronic bronchitis and emphysema, nephrolithiasis, and cholelithiasis. Ischaemic and symptomatic heart disease were diagnosed on the basis of electrocardiographic findings, confirmed by a cardiologist or by hospital admission. Hypertension was defined as a diastolic level of 100 mm Hg. or higher, recorded on three separate occasions. Diabetes was diagnosed in the presence of a fasting blood sugar in excess of 130 mg per 100 ml and confirmed by glucose tolerance test when necessary. Pulmonary tuberculosis was included only when a record existed of anti-tuberculous therapy for active disease.

All other listed diagnoses were only included where specialist consultation or hospital admission had confirmed the diagnosis. The strict application of diagnostic criteria would suggest that the true prevalence of several diseases was even higher than those found in this survey, as all 'non-proven' cases were excluded. The high percentage of patients among the older age groups in whom long-term illness was diagnosed assumes even greater significance when associated with the additional finding that among men and women aged 65 years and over, 22 per cent and 24 per cent respectively suffered from two concomitant illnesses, 28 per cent and 22 per cent from three illnesses, and 45 per cent and 28 per cent from four or more concomitant illnesses.

In accordance with the classification of the Registrar General in Great Britain, social class was defined in five groups. To achieve numbers which would permit valid statistical analysis, social classes I and II were grouped together as were classes IV and V. The high prevalence of long-term illness, and of multiple diagnoses among those of social class IV and V, has already been well affirmed (Vital and Health Statistics, 1971). In this survey, the percentage of men and women in whom two or more concomitant illnesses were diagnosed rose from 32 per cent and 28 per cent respectively in those of social class III, to 36 per cent and 33 per cent in those of social classes IV and V combined. No comparison could be made with patients of social classes I and II, because the numbers in this group were too small, and this in itself emphasises these differences.

The prevalence rates of long-term illness showed a significant relationship with sex, in several diagnostic categories. The male-female ratio showed male predominance in ulcers of the stomach and duodenum (3.2:1), nephrolithiasis (2.3:1), ischaemic heart disease (1.9:1), glaucoma (1.5:1), diseases of the central nervous system (1.4:1), malignant neoplasms of the skin (1.3:1), and hyperplasia of the prostate (59.9 per 1,000 males).

Female predominance (female-male ratio), was apparent in diseases of the thyroid gland (15:1), cholelithiasis (3.3:1), arthritis and rheumatism (2.9:1), malignancy exclusive of skin and connective tissue (1.9:1), hypertensive disease (1.3:1), and psychosis (1.3:1). No significant differences were apparent among the sexes in any other diagnostic categories. Some of these differences were further emphasised when studying the seven most prevalent diagnoses in each sex (table 3).

It should be noted that the definition of mental disorder in this survey included only those cases diagnosed after psychiatric consultation. A conservative estimate

TABLE 3

THE SEVEN MOST PREVALENT DIAGNOSTIC GROUPS AMONG MALES AND FEMALES (RATES PER 1,000 PATIENTS)

	<i>Rank</i>	<i>Diagnosis</i>	<i>Rate</i>
<i>Males</i>	1	Cardiovascular disease	114.9
	2	Mental disorders	93.4
	3	Ulcers of stomach and duodenum	75.4
	4	Hyperplasia of prostate	59.9
	5	Nephrolithiasis	52.7
	6	Chronic respiratory disease	50.3
	7	Diabetes mellitus	32.3
<i>Females</i>	1	Mental disorders	97.4
	2	Cardiovascular disease	96.3
	3	Diseases of the thyroid gland	53.9
	4	Chronic respiratory disease	47.7
	5	Ulcers of stomach and duodenum	33.2
	6	Diabetes mellitus	33.2
	7	Cholelithiasis	28.0

would indicate that for every patient referred to a psychiatrist, at least one other case had been diagnosed by the family physician, but had received therapy from the primary medical team. These unreferral cases were excluded from this survey, but their inclusion would have resulted in a prevalence rate of mental disorder at least double that which was found, and this would probably reflect a more realistic estimate. This assumption was supported by the findings of an earlier survey in this practice population, in which the prevalence rates per 1,000 of emotional disorders among married couples, when standardised for the total practice population, were 170 for males, and 260 for females (Polliack, 1969).

The prevalence rates of long-term illness calculated in this survey served to emphasise further the relative importance of mental disorders, cardiovascular and respiratory diseases in long-term illness. Any effective programme for the control of long-term illness in this population, whether it be for primary prevention, early detection, the avoidance or minimising of long-term disability, or the postponement of death, must take into account the potential implications of these illnesses, and the relative frequency of their distribution.

It also appears that there is an urgent need to investigate the prevalence of long-term illness among larger community population groups, to provide a statistical basis for valid comparisons and for planning comprehensive community health care programmes, based on the priority needs of the population at risk.

Summary

The prevalence of 20 diagnostic categories of long-term illness was assessed by a retrospective study, in an urban practice population of 1,800 patients who received prepaid medical care from one primary health care team. The percentage of patients with diagnosed long-term illness was found to be highest among those aged 65 years and over (among those of European-American origin), and among those of social classes IV and V. These groups also showed the highest prevalence of multiple diagnoses. Prevalence rates expressed per 1,000 patients, were calculated for each diagnostic category, and male:female ratios were calculated.

The significance of these findings is discussed, and it is concluded that there is an urgent need for investigating the prevalence of long-term illness among larger population

groups to provide a statistical basis for valid comparisons and for the planning of comprehensive community health care programmes, based on the needs of the population at risk.

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DISTINCTION AWARDS

There are, of course, occasions on which the advice we receive from the different sources does not reveal unanimity, or where it is clear that there are more deserving candidates in a locality than there are awards than can be made available. In cases of difficulty such as these, when the process of local probing and assessment to which I have earlier referred fails to indicate the right course and there are no additional sources of advice on which we can rely, we study carefully the personal record forms (the *curriculum vitae*) that are held confidentially in the Department of those consultants (a very large majority) who have sent them to us.

All eligible consultants are given the opportunity of completing these record forms on their first appointment, and thereafter of updating them at three or four yearly intervals. I might add that it is of course quite in order for consultants to send in further relevant material at any time and this is added to their personal folder.

The forms are also important in relation to 'appeal' cases which are specially listed for consideration by the Advisory Committee each year and for myself and the Vice-Chairman on regional visits.

REFERENCE

- MacLennan, Sir Hector (1973). *Health Trends*, 5, 24-26.