

Health and the Urban Environment

XII. The Incidence and Burden of Minor Illness in a Healthy Population: Duration, Severity, and Burden¹⁻⁴

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SUMMARY

A longitudinal study of Manhattan residents involving weekly observations of a set of acute symptoms (1) showed some surprising results concerning the burden of minor illness that these people experienced. The average length of illness was one week. Persons were ill (had symptoms) from none to 90 per cent of the time; adults who were ill at any time during the study reported illness at an average of 25 per cent of the time whereas children were ill at an average of 60 per cent of the time.

Duration of illness varied from one type of illness to another and from one person or group to another, with very few illnesses lasting more than 6 weeks. Duration of illness varied directly with the number of symptoms present.

Average durations, as well as incidence rates, varied with age, approximating the J-shaped mortality curve. Females had higher rates and longer durations of illness than males, and whites had higher rates than Negroes or Puerto Ricans, although Puerto Ricans usually reported longer illnesses than either whites or Negroes.

In general, this study found a remarkably high burden of illness in a healthy urban population, in fact, far more than normally imagined.

Introduction

Studies by other investigators (2-10) provide most of the current knowledge of the frequencies of minor illnesses. Most of these studies examined incidence, secondary at-

tack rates, seasonal patterns, recurrences, and age and sex differences.

These epidemiologic studies have been somewhat complemented by information concerning incubation periods, differences among minor illnesses, and intervals be-

(Received in revised form March 13, 1972)

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² This work, The Cornell Family Illness Study, was supported by the National Center for Air Pollution Control of the U. S. Public Health

Service (Grants AP 00266 and AP 00547) and by the Health Research Council of New York City (Contract U-1155).

³ Presented at a workshop of the First Annual Meeting of the Society for Epidemiologic Research, Washington, D. C., May 10, 1968.

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TABLE 1
ILLNESSES OF DIFFERENT DURATIONS BY BROAD TYPE

Type of Illness	Total	No. of Episodes			Total	No. of Days			Average Duration (days)
		<3 Days	3-30 Days	>30 Days		<3 Days	3-30 Days	>30 Days	
Total	8,885	3,147	5,565	173	61,893	4,393	48,949	8,551	6.97
%	100	35.4	62.6	2.0	100	7.1	79.1	13.8	
URI	5,462	794	4,501	167	51,253	1,280	41,701	8,262	9.38
%	100	14.5	82.4	3.1	100	2.5	81.4	16.1	
"Common cold"	3,971	360	3,460	151	41,333	622	33,133	7,568	10.41
%	100	9.1	87.1	3.8	100	1.5	80.2	18.3	
Rhinitis	727	165	549	13	5,597	247	4,761	589	7.70
%	100	22.7	75.5	1.8	100	4.4	85.1	10.5	
Cough and/or sore throat	764	269	492	3	4,323	411	3,807	105	5.66
%	100	35.2	64.4	0.4	100	9.5	88.1	2.4	
Gastrointestinal and other	3,423	2,353	1,064	6	10,640	3,113	7,248	289	3.11
%	100	68.7	31.1	0.2	100	29.3	68.1	2.7	
Gastrointestinal symptoms	1,385	1,017	364	4	4,558	1,363	3,007	188	3.29
%	100	73.4	26.3	0.3	100	29.9	66.0	4.1	
Other	2,038	1,336	700	2	6,082	1,750	4,831	101	2.98
%	100	65.6	34.3	0.1	100	28.8	79.4	1.7	

tween successive illnesses by the experimental studies of Andrewes (11) and Tyrell (12) in England, and those of Jackson and associates (13) in the United States.

The two major questions that have not been adequately explored are: (1) what is the actual burden of minor illness borne by an average person? (2) what is an accurate delineation of the duration of such an illness? Studies of illness patterns have usually been limited in their scope. Familial spread has probably received the most attention whereas individual differences in illness experience have often received little attention. Severity of illness has also rarely been considered.

The purpose of this study was to examine individual experiences of common acute illness. The major emphasis was on duration, severity, and individual burden of illness. Severity of illness was defined by both the number of symptoms and the number in combination with duration. Comparisons with other studies were made when possible.

The methods used in this study and some comparisons with other studies were presented in a previous paper (14). Because the results were quite similar to those of the

other studies and therefore appeared valid, further analysis was pursued.

Results

Duration and burden of illness: Duration of acute illness has rarely been studied. Besides its intrinsic interest, when combined with frequency of illness, it was taken to determine the burden of disease experienced by the population.

Most of the acute illnesses lasted between 3 and 30 days (table 1). There were more upper respiratory illnesses that lasted more than 30 days (3 per cent); many gastrointestinal and other illnesses lasted fewer than 3 days (69 per cent). Because the upper respiratory illnesses were far more frequent when all illnesses were examined together, the conclusions drawn were primarily based on upper respiratory illness experience.

All illnesses studied averaged 7.0 days in length; the respiratory illnesses averaged 9.4 days (table 2), which is longer than commonly reported (4-6, 10). Although most of the respiratory illnesses were of one week's duration or less (59 per cent), 25 per cent lasted more than 11 days; 16 per cent, more than 14 days; 3 per cent, more than 30

TABLE 2
AVERAGE DURATION IN DAYS OF ILLNESS BY TYPE,
SEX, AGE, AND RACE

	Total	Respiratory		Gastro- Intestinal	Other
		Total	"Cold"		
Sex					
Male	6.8	8.9	9.8	2.8	3.3
Female	7.1	9.8	10.9	3.6	3.5
Age, years					
0-4	8.5	9.6	10.3	3.1	2.6
5-9	6.9	8.2	9.0	2.3	2.9
10-19	6.4	8.4	9.2	2.3	3.0
20-29	5.7	8.6	9.7	3.2	2.8
30-39	6.5	9.6	10.7	3.7	3.0
40-49	7.0	10.6	11.7	4.2	3.6
50-59	7.6	11.3	13.2	3.8	4.6
60+	7.9	11.9	14.7	3.6	4.4
Race					
White	6.6	9.5	10.9	3.1	3.4
Negro	6.8	8.6	9.6	3.2	3.0
Puerto Rican	7.5	9.5	10.1	3.8	3.6
Total	7.0	9.4	10.4	3.3	3.4

days, and 1 per cent of all illnesses lasted more than 6 weeks. Surprisingly, 14 per cent of the person-days of illness were illnesses lasting longer than 30 days. Roden (15) indicated that viral strains with shorter incubation periods were often associated with illnesses of longer lengths, and vice versa. He reported an over-all proportion of 65 per cent of illnesses that lasted 7 or more days, and 29 per cent that lasted 14 or more days, compared to the 56 per cent and 20 per cent, respectively, reported herein. Miller and co-workers (6) and Brimblecombe and associates (5) also reported that coughs and the nasal discharge of severe colds could last several weeks.

The average durations of all illnesses, respiratory illness, and "common cold" were high for those less than 5 years old, declined, and then increased in subjects more than 40 years old (table 2). Respiratory illnesses lasted longer for subjects more than 40 years of age than for those less than 5 years old (figure 1). Gastrointestinal and other illnesses generally showed increases in duration with age for subjects more than 30 years of age. Females had more and somewhat longer illnesses than males. Differences in lengths of illness by race were dependent on

the type of illness; when all illnesses were considered, Puerto Ricans tended to report somewhat longer episodes than other

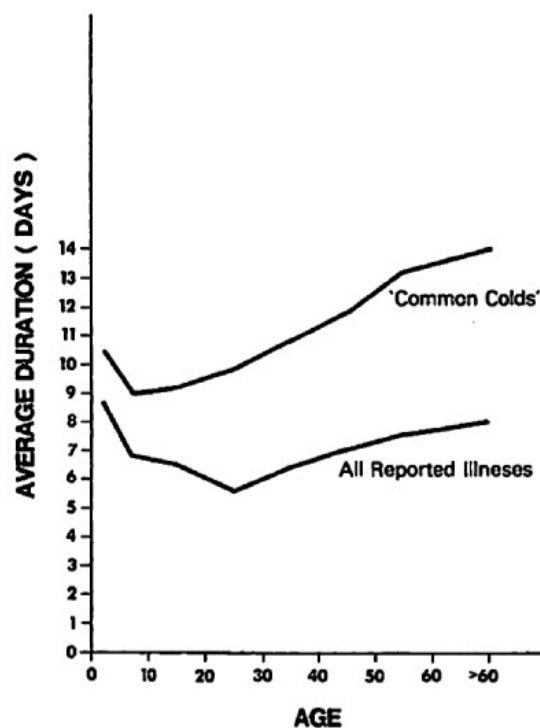


Fig. 1. Average duration of illness as a function of age for all illnesses and "common colds."

