

SOCIO-ECONOMIC STATUS, ILLNESS, AND THE USE OF MEDICAL SERVICES¹

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A SURVEY of past studies on the subject with which this paper deals generally reveals that the greatest amount of illness is found amongst those socio-economic classes which are least able to pay for it. The work of Sydenstricker in Hagerstown, Maryland as early as 1921 revealed an increase in illness with a decrease in socio-economic status (1). Despite differences in definitions of illness and socio-economic status, most of the subsequent studies had findings consistent with those in Hagerstown. They further discovered that the lower socio-economic classes, those with the greatest proportion ill, consulted physicians and were hospitalized least (2). One important exception, the study by the Committee on the Costs of Medical Care, suggested that persons in upper strata had highest illness rates, but concurred with other investigations in finding that lower strata use physicians and hospitals least (3).

The purpose of this paper is to examine the relationship of socio-economic status, illness, and use of physicians and hospitals in Butler County, Pennsylvania in 1954. In the last fifteen years, America has seen continuing and increasing economic prosperity. Concurrently, it has witnessed a growth in the use of health insurance and increasing control of communicable diseases. It seems particularly important at this time, therefore, that the relationship between social stratification and health be re-examined to discover whether the traditional picture has changed in response to new conditions.

The data utilized in this investigation were gathered in June and July of 1954 by personal interviews on a probability

¹ Paper presented at the Medical Sociology section, meetings of the American Sociological Society, Detroit, Michigan, September 7, 1956.

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sample developed through the area sampling technique, combined with geographic stratification and proportionate representation of urban, rural-place, and open country population.³ The sample, consisting of 3,403 persons, represented roughly three per cent of the County's population, all of the white race. Butler County, it was found, is about 28 per cent urban, 20 per cent rural-place and 52 per cent open country population. Two kinds of evidence can be used to evaluate the estimates developed in this survey. First, comparisons of the survey results with those of the 1950 census, show close similarities in estimates on age, sex, education, and rural-urban distributions. Secondly, computations of sampling variation of estimates based on the survey indicate a relatively small margin of error.

THE FINDINGS

Using Edwards' Occupational Categories to establish socio-economic status, six classes were devised: professionals in class A, proprietors and managers in class B, clerks and sales personnel in class C, skilled in class D, semi-skilled in class E, un-skilled in class F. The 236 farmers in the sample were excluded from this analysis. The definitions of illness and of use of services must be carefully grasped. Respondents were first queried as to whether they or any members of their households had at the time of interview any of nine chronic diseases, rheumatic fever, high blood pressure, diabetes, asthma, kidney trouble, arteriosclerosis, or hernia. Later they were asked whether anyone in their households had consulted a physician, had been hospitalized, or had lost time from work or other usual activity in the month prior to interview. Questions were also asked to determine hospitalization in the year prior to survey. In each case of an affirmative answer, ques-

³ Sampling procedures were established by Donovan J. Thompson, Ph.D., Department of Biostatistics, Graduate School of Public Health, University of Pittsburgh. The advice and encouragement of Antonio Ciocco, Sc.D., Head of that Department, throughout the course of planning and execution of the project and in the analysis of data were invaluable, and grateful thanks are hereby tendered. Discussions with Professor A. B. Hollingshead, Ph.D., Department of Sociology, Yale University, have also been of material aid.

	CLASSES						TOTAL	X ² PROBABILITY
	High			Low				
	A	B	C	D	E	F		
Total Persons Ill	40	69	66	205	179	176	735	.75
Percentage (Age-Adjusted)	25.3	22.8	24.2	25.3	23.3	25.5		
N	163	294	270	843	809	686	3,065	
Ill Persons Consulting Physicians in the Month Prior to Survey	23	23	30	93	69	74	312	.15
Percentage (Age-Adjusted)	58.3	34.5	40.4	43.8	36.6	40.6		
N	40	69	66	205	179	176	735	

Table 1. Ill persons and ill persons consulting physicians in the month prior to survey, in percentages (age-adjusted).

tions were asked as to whether a medical condition had been responsible, and if so, further questioning was undertaken to discover the nature of the medical condition. A final question had to do with whether any individual had been ill but had not seen a doctor, been hospitalized, or lost time from work. A count of the total number of people who affirmatively answered any of the questions and cited medical conditions as being responsible, furnished an estimate of the total illness in Butler County. Our analyses are in terms of numbers of people ill rather than in terms of attacks of illness.

It was found that no discernible differences existed among the classes in the total percentage of persons ill of any cause during the month preceding survey. Because of variations in age distribution of the classes, and of the importance of age in illness, proportions are age-adjusted. Class A reported 25 per cent ill, as did class F. (*See* Table 1) This is at odds with traditional findings. In the proportions consulting with physicians regarding their illnesses, however, some differences were discovered. Fifty-eight per cent of class A individuals consulted with physicians and this decreased to around 40 per cent of class F.

Dividing illnesses into acute and chronic conditions, we find only small differences. (*See* Table 2) Class A had the highest proportion of acutely ill individuals with 13.3 per cent. Class

	CLASSES						TOTAL	X ² PROBABILITY
	High			Low				
	A	B	C	D	E	F		
Persons with Acute Illness	19	23	28	79	59	68	276	.25
Percentage (Age-Adjusted)	13.3	8.1	10.3	9.4	7.3	9.8		
N	163	294	270	843	809	686	3,065	
Acutely Ill Consulting Physicians	17	14	23	64	45	46	209	.15
Percentage (Age-Adjusted)	87.0	50.0	63.3	78.8	74.8	70.6		
N	19	23	28	79	59	68	276	

Table 2. Persons having acute illness and acutely ill persons consulting physicians in the month prior to survey, in percentages (age-adjusted).

F, however, had a somewhat smaller proportion with 9.8 per cent. This increase of acute illness with increase in class rank is at odds with the inverse relationship discovered in the National Health Survey (4). But the differences observed in Butler were not significant by the chi-square test.⁴ With

⁴ The diseases were classified after examination of the categories into which they fell in the *Manual of the International Statistical Classification of Disease, Injuries, and Causes of Death*, World Health Organization, 1948. The diseases were classified as follows:

Acute:

- Infective and Parasitic: 002-019, 48-102.
- Diseases of the Nervous System and Sense Organs: 331-332, 370-379, 388-394.
- Diseases of the Circulatory System: 400-401, 434, 456, 463-468.
- Diseases of the Respiratory System: 463-501, 511, 517-519.
- Diseases of the Digestive System: 533-539, 543-544, 550-551, 570-571, 575-576, 578-580, 583, 586-587.
- Diseases of the Genito-Urinary System: 590-593, 600, 605, 606, 610, 621, 624, 630.
- Deliveries and Complications of Pregnancy, Childbirth and the Puerperium: 650-689.
- Diseases of the Skin and Cellular Tissues: 690-695, 698, 703, 714, 716.
- Diseases of the Bones and Organs of Movement: 722, 727, 730, 735, 738-741.
- Diseases of Early Infancy: 761.
- Symptoms, Senility and Ill-Defined Conditions: 780, 783-789.
- All Accidents, Poisonings, Violence.

Chronic:

- Infective and Parasitic: 130-138.
- Neo-plasms: 130-239.
- Allergic, Endocrine System, Metabolic, and Nutritional Diseases: 240-296.
- Diseases of the Nervous System and Sense Organs: 334, 350-369, 385, 396-398.
- Diseases of the Circulatory System: 416-420, 443-455, 460-462.
- Diseases of the Respiratory System: 502-510, 512-516, 522-526.
- Diseases of the Digestive System: 540-541, 545, 552-560, 572-573, 581, 584.
- Diseases of the Genito-Urinary System: 594, 602-603, 612, 620, 633-637.

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	CLASSES						TOTAL	X ² PROBABILITY
	High			Low				
	A	B	C	D	E	F		
Persons with Chronic Illness	22	50	45	145	136	130	528	.60
Percentage (Age-Adjusted)	12.7	15.8	16.5	17.7	18.1	19.0	3,065	
N	163	294	270	843	809	686		
Chronically Ill Persons Consulting Physicians	17		36		52			105
Percentage (Age-Adjusted)	22.4		18.8		18.6		528	
N	72		190		266			

Table 3. Persons having chronic illness and chronic ill persons consulting physicians in month prior to survey, in percentages (age-adjusted).

regard to acutely ill persons who consulted physicians relative to their illness, however, the traditional pattern was suggested. Thus, almost 90 per cent of class A persons who were acutely ill saw their doctors, only half of class B, and around 70 per cent in class F consulted their physicians. But although class F consulted less than class A, no regular decline from one to the other was observed, nor were differences statistically significant.

Persons having chronic disease were defined by considering those who answered affirmatively to the specific questions regarding whether household members had certain chronic diseases; also included were persons who reported an acute attack of a chronic disease in the month prior to survey.

Only insignificant differences in persons having chronic diseases amongst the classes were discovered. (See Table 3) Thirteen per cent of class A were afflicted with chronic diseases in the month prior to survey as opposed to 19 per cent of class F. Thus, the traditional picture was again discovered. The number of persons consulting physicians for their chronic illness was very small, and estimates, therefore, are less reliable than in the cases already cited. Nevertheless, it was found that

Diseases of the Skin and Cellular Tissue: 696, 701-702, 708-713.

Diseases of the Bones and Organs of Movement: 725-726, 732, 734, 737, 744-749.

Congenital Malformations: 750-757.

Symptoms, Senility and Ill-Defined Conditions: 782, 790-791, 794.

	CLASSES						TOTAL	X ² PROBABILITY
	High			Low				
	A	B	C	D	E	F		
Persons Having Impairments	25		57		69		151	.75
Percentage (Age-Adjusted)	5.1		6.1		4.9			
N	457		1,113		1,495			

Table 4. Persons having impairments, in percentages (age-adjusted).

around 22 per cent of classes A and B consulted their physicians as compared with around 19 per cent of classes C, D, E, and F.

With regard to reporting of impairments such as loss of arms or legs and vision or hearing defects, the upper, middle and lower classes were almost identical. (See Table 4). Roughly 5 per cent in all classes reported an impairment.

Analyses of the use of health services among the classes revealed other differences which were small. (See Table 5). Thus the proportion of persons who saw a doctor for any reason, i.e., consultation for illness or for routine physical examinations was 18 per cent of Class A as compared to 13 per cent of class F. We have already seen that in consultation for illness, there was a small decline with class rank. An almost infinitesimal

Table 5. Persons consulting physicians in month prior to survey, and persons hospitalized in year prior to survey by percentages (age-adjusted).

	CLASSES						TOTAL	X ² PROBABILITY
	High			Low				
	A	B	C	D	E	F		
Persons Consulting Physicians for Any Reason	28	37	37	109	94	87	392	.60
Percentage (Age-Adjusted)	17.5	12.5	13.6	13.0	12.1	12.5		
N	163	294	270	843	809	686		
Persons Consulting Physicians for Examination	15		21		40		76	.15
Percentage (Age-Adjusted)	3.0		1.9		2.7			
N	457		1,113		1,495			

	CLASSES						TOTAL	X ² PROBABILITY
	High			Low				
	A	B	C	D	E	F		
Persons Hospitalized in Past Year	13	16	20	56	43	44	192	.60
Percentage (Age-Adjusted)	7.8	5.2	7.2	6.8	5.5	6.5		
N	163	294	270	843	809	686	3,065	

Table 6. Persons hospitalized in past year by percentage (age-adjusted).

decline with rank also was recorded in proportions consulting physicians for examinations. The differences, of course, were not statistically significant.

Again, in the use of another type of health service, hospitals, no significant differences were revealed. Roughly 8 per cent of class A persons were hospitalized in the year preceding survey as compared to around 7 per cent of class F persons. (See Table 6). It was felt that the effect of possession of health insurance might have some influence on the use of hospitals by individuals in Butler County. Analysis revealed, however, that persons with health insurance are not much more likely to have been hospitalized than those without it.

We can conclude that when the variables are defined as they were in Butler County in 1954, the relationship of socio-economic status to illness differs in some degree from that found in past studies. Only minor differences were discovered in illness rates and in use of hospitals. The only relationships similar to those found earlier were in the slightly smaller use of physicians and the somewhat larger proportion of persons with chronic disease in the lower part of the socio-economic continuum. It is true that definitions of socio-economic status and of illness differ in the various studies. Some are based on income, others on categories such as "well-to-do" and "comfortable," and others, like the present study, on occupation. Nevertheless, the definitions are roughly similar. In view of the findings of the present study, then, we suggest that the whole problem of the relationship between socio-economic

status, illness, and use of services should be re-examined in future studies.

It is possible that socio-economic differences in illness as defined in this paper never existed in Butler County, or that if they did in the past, as intimated by earlier studies, they have disappeared. If the latter alternative is the case, and this possibility exists, they may have disappeared because of the prosperity America has enjoyed in the last fifteen years, because of the proliferation of health insurance, and because of the increasing control of those illnesses which are fostered by low socio-economic status.

Increasing prosperity could make more universally available the material prerequisites for health, i.e., good food, housing, and the like, and thus help to reduce class differences in illness. Again, the greatest advances of medical science and public health have been in the direction of controlling communicable diseases. These are the diseases which are fostered by the crowding, filth, and other factors associated with low socio-economic status. The new control measures may be so effective that disease is reduced regardless of illness-producing conditions in some classes, and class differences in illness thus are reduced. Finally, the spread of health insurance protects all classes from the costs of illness, and this may promote the use of hospitals in equal degree by all classes. The possibility that the lower classes still consult physicians less may be a reflection of the less effective insurance provided for the costs of physicians' services.

All of these are suppositions only. We have no evidence that Butler County is peculiar in its conditions because of any change. The situation revealed may be a long-standing one. It is interesting, however, that Butler County does not appear to be aberrant from others in Pennsylvania in education, housing characteristics, or in medical care facilities. A study comparing the illness and use of medical care facilities in Butler County and the Arsenal Health District of Pittsburgh revealed no important differences between the two areas (5). The one

unequivocal statement that may be made is that in Butler County, while some traditional relationships were suggested, no appreciable differences, as we defined them, existed among socio-economic status groups in illness and use of hospitals. This indicates the need for further examinations of the relationship.

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