

## CHRONIC MORBIDITY AND THE SOCIO-ECONOMIC CHARACTERISTICS OF OLDER URBAN MALES

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The seventh decade of life is in many respects an important transitional period for today's urban male in the United States. During this period a large proportion of men, most of whom are actively employed, face the prospect of job separation and withdrawal from the labor force. Such withdrawal in most instances results in changed economic circumstances and consequently in changes in level of living and in style of life. Health status, variously defined, is probably a continuous variable and the probability of developing a chronic illness or of dying continues to increase during this period of life. Family situations may undergo change with changing economic circumstances, with severe health changes, and, of course, with widowhood. A comprehensive prospective study is being conducted of the relationships between health and a range of demographic, socio-economic, and family characteristics among a group of urban males who are approaching old age.

The long-range purpose of the study is to investigate the changes which occur in health characteristics in the seventh decade of life, to interpret their functional significance, and to examine the inter-relationship between these changes and socio-economic and demographic variables.<sup>1</sup> Bench-mark information concerning reported chronic conditions and disabling confinement and their association with certain socio-economic characteristics of the study population is reported here.

In selecting a study population which would be consistent with the basic research objectives and budgetary limitations, it became highly desirable to delimit it sharply both geographically and demographically. Geographically, the study population was limited to the residents of Providence, Rhode Island, which had a population of approximately 207,000 in 1960. Because the health of the members of the study population was to be examined in relation to various social situations, the study population was restricted to noninstitutionalized married males living with spouses. Further, because Providence has only a relatively small nonwhite population (5.8 per cent of the total 1960 population), the study was limited to white residents. Thus, with these restrictions imposed, the basic group for study consists of the noninstitutionalized married white males between the ages of 60 and 64, who were residents of the city of Providence on May 1, 1962. (The spouses of the qualifying males are also being studied.)

#### STATISTICAL DESIGN AND DATA COLLECTION

Because it was recognized at the start that the total universe of the specified population could not be studied, basic questions were concerned with the sampling design. First, a probability sample was desired so that the amount of sampling error could be measured and the results could be generalized to the study universe. Second, a high sampling density in the order of one-quarter of the universe was desired in order to permit the study of the relationships between a moderately wide range of variables. Although it was believed that available research funds would permit the collection of schedules of information on approximately one-quarter of the study population, prudence dictated that the sampling procedure be so designed that a viable sample of schedules would be obtained if experience in the field showed that the desired one-quarter sampling ratio was not economically feasible.

These determining factors led to the use of Deming's replicated area sampling technique.<sup>2</sup> Following Deming's guide, the city of Providence was divided into 11 independent and nonduplicating

area samples which could be used singly or in combination. Initially, two of these samples, randomly drawn, representing a sample of 18 per cent of the universe, were used in the data collection. A short period of field experience clearly indicated the economic feasibility of pursuing the original desired sampling ratio, and a third sample was randomly drawn and the investigation then was conducted of a 27 per cent sample of the study universe.

Because the study population was so sharply delimited, with the subjects of investigation essentially "scarce" items, special field procedures were developed. A screening operation which was an "age-sex-color-marital status" census of the 18,000 households in the sample units was carried out as the first stage, identifying 668 qualifying husbands and their spouses.<sup>3</sup> In the second stage, specially trained interviewers went to the identified households and obtained completed schedules of information from both husband and spouse in 605, or 90.6 per cent, of the qualifying households.<sup>4</sup> Information obtained from these 605 males is reported on here.

Several types of information concerning the health of the respondents were obtained, the principal one being self-reported pathologies. This information was obtained in a procedure very similar to that developed by the United States National Household Health Survey.<sup>5</sup> Although information on all pathologies present at the time of interview was obtained, the study is limited to chronic conditions. These are defined as those conditions "chronic by their nature," and conditions which had persisted for three months or longer prior to the date of interview.<sup>6</sup> The conditions reported were coded essentially in terms of the United States National Health Survey's adaptation of the International Classification of Diseases.

Although information concerning the prevalence of total chronic conditions and of specific conditions among the study population is of basic interest and will be utilized in parts of the study, additional information concerning the consequences of the reported conditions was obtained so that attempts could be made to determine the functional significance of these chronic conditions. The respondent was questioned as to the amount and type of confinement resulting from each condition and the specific activities the condition kept

him from. Because it was believed that better reporting of this information would be obtained if it were tied to a specific calendar date, information on confinement and activity restriction was requested for the period from January 1, 1961 to the time of interview. This procedure, however, had the disadvantage of variable time periods, for the respondents were not interviewed simultaneously but over a period of a number of months. To determine if bias was introduced by this procedure, time of interview was examined in relation to: 1. reporting of all chronic conditions; 2. reporting of life-threatening chronic conditions; 3. length of confinement; and 4. a range of socio-economic factors. No significant differences in these phenomena were observed between those persons interviewed during the first and second halves of the interviewing period. (Chi-square tests were applied to the distributions.)

All incidents of disabling confinement which were the consequence of a reported chronic condition were recorded by the interviewer. However, because of the uncertainty of recall, only those incidents which were of seven days' or more duration have been used for analytical purposes. Using rather rigorous criteria, persons reporting one or more chronic conditions were classified in terms of one of the following confinement categories: 1. *severe or long-term confinement*—confined to house or bed for six months or more and/or hospitalized for one month or more; 2. *medium-term confinement*—confined to house or bed for one month to less than six months and/or hospitalized for two weeks to less than one month; 3. *short-term confinement*—confined to house or bed for one week to less than one month and/or hospitalized one week to less than two weeks; 4. *no confinement*—no incident of confinement of seven days or more.

#### GENERAL MORBIDITY

In 1962, 63.6 per cent of the men in the study group reported the presence of one or more chronic conditions. With the exception of some self-discernible conditions, such as varicose veins or impaired hearing, all of the conditions reported had been diagnosed by a

physician and given a medical name. There were 861 chronic conditions reported by 385 males out of the total sample of 605. These conditions were not, however, distributed in any even fashion among the men studied: 166, or 27.4 per cent, of the men reported the presence of only one condition and four, or 0.7 per cent, stated they were suffering from eight known conditions. The concentration of reported chronic conditions is indicated by the fact that 11.3 per cent of the group studied reported the presence of four or more conditions representing 40.0 per cent of all reported conditions. This situation would seem to support the statement "that chronic diseases tend to cluster in a small portion of the populace [today] in much the same way as communicable diseases once did."<sup>7</sup>

While many of the conditions reported were bothersome but minor afflictions, such as hay fever, hemorrhoids, or sinusitis, others were more serious and some were life-threatening. In fact, 93 men, or 24.2 per cent of those reporting one or more conditions, reported the presence of what were considered life-threatening conditions.<sup>8</sup>

Not unexpectedly for this particular age group, arthritis and rheumatism showed the highest prevalence rate, 155 per 1000 (Table 1). However, of nearly as great numerical importance, and certainly even more important in terms of threat to life, was the presence of a heart condition with a prevalence rate of 127 per 1000 persons.

TABLE I. PREVALENCE OF SPECIFIC REPORTED CHRONIC CONDITIONS

Condition	Rate per 1000	Condition	Rate per 1000
Malignant neoplasms	10	Peptic ulcer	56
Benign and unspecified neoplasms	21	Hernia	69
Hay fever and asthma	43	Other conditions of digestive system	31
Diabetes	43	Conditions of genito-urinary system	55
Mental and nervous conditions	10	Arthritis and rheumatism	155
Heart conditions	127	Other diseases of muscles, bones, and joints	43
High blood pressure	79	Visual impairments	38
Varicose veins	36	Hearing impairments	81
Hemorrhoids	50	Paralysis, complete or partial	13
Other conditions of circulatory system	46	Impairments (except paralysis and absence) of limbs, back, trunk	78
Chronic sinusitis and bronchitis	91		
Other conditions of respiratory system	20		

Prevalence rates were high also for chronic sinusitis and bronchitis (91 per 1000), hearing impairments (81 per 1000), and high blood pressure (79 per 1000).

#### REPORTED MORBIDITY AND SOCIO-ECONOMIC CHARACTERISTICS

With more than three-fifths of the males studied reporting the presence of one or more chronic conditions, an important question then was whether the reported illness was related to distinguishable socio-economic characteristics. Other investigations, of somewhat different groups from those studied here, suggest an inverse relationship between socio-economic status and the incidence of chronic illness among older people. In a study of a group 60 years of age and over, persons of lower status, as measured by an index of education, occupation, income and other factors, were reported as containing a higher proportion in poor health than those of higher status groups.<sup>9</sup> And the United States National Health Survey showed, both among the 55–64 and the 65–74 age groups, a steady inverse relationship between the proportion reporting one or more chronic conditions and family income.<sup>10</sup>

The analysis of data from this present study (Table 2) shows, in general, the same kind of relationship. A higher proportion of men with eight years or less of education reported the presence of one or more chronic conditions than did those with more education. Among men employed in blue-collar occupations, whether as the most recent or the major lifetime occupation, a higher proportion than among white-collar employed reported having a chronic condition; and in terms of economic position, whether measured by family income or by self-appraisal of their financial position, a higher proportion of men in the lower levels than in the higher reported the presence of one or more chronic conditions. The most striking contrast in proportions of males with a chronic condition is that between those who stated their financial position was poor—nearly 80 per cent—and those who stated their position was comfortable or well-to-do—about 57 per cent—a difference of nearly 22 percentage points. “P” values of chi-squares computed from these socio-economic

TABLE 2. SELECTED SOCIO-ECONOMIC CHARACTERISTICS BY  
PERCENTAGE REPORTING ONE OR MORE CHRONIC CONDITIONS

<i>Socio-economic Characteristic</i>	<i>Total Persons</i>	<i>Percentage Reporting 1+ Chronic Conditions</i>
<b>Education (years of school completed)*</b>		
total no.	600	
%	100.0	63.7
8 years or less	55.2	68.6
9 through 12	34.5	56.0
13 or more	10.3	62.9
(median = 8.8 years)		
<b>Most recent occupation</b>		
total no.	605	
%	100.0	63.6
white-collar occupation	42.0	61.0
blue-collar occupation	58.0	65.5
<b>Major lifetime occupation</b>		
total no.	604	
%	100.0	63.6
white-collar occupation	38.2	61.9
blue-collar occupation	61.8	64.6
<b>Family income, 1961*</b>		
total no.	557	
%	100.0	63.6
under \$2,000	8.1	77.8
\$2,000-\$3,999	32.5	69.6
\$4,000-\$6,999	39.5	58.2
\$7,000 and over	19.9	58.6
(median = \$4,465)		
<b>Self-appraisal of financial position, 1962**</b>		
total no.	604	
%	100.0	63.6
cannot make ends meet	8.0	79.2
just enough money to get along on	38.7	69.2
comfortable or well-to-do	53.3	57.5
<b>Nativity*</b>		
total no.	603	
%	100.0	63.5
native	59.4	60.1
foreign born	40.6	68.6
<b>Labor force status**</b>		
total no.	605	
%	100.0	63.6
in labor force	83.3	58.5
not in labor force	16.7	89.1

\* Significant at the .05 level.

\*\* Significant at the .001 level.

conomic status-chronic conditions distributions indicate that the relationships in terms of self-appraised financial position are statistically significant at the .001 level, and the education and family income relationships are statistically significant at the .05 level. The relationships with the occupational measures are not statistically significant.

Place of birth was an important distinguishing characteristic of our study population. Over 40 per cent were foreign-born, reflecting in this age group particularly the heavy immigration to Providence during the first quarter of this century. And among the foreign born a statistically significant (at the .05 level) higher proportion than among the native-born reported the presence of one or more chronic conditions. The possibility that cultural differences among these two groups in response to questioning about illness was responsible for these observed differences must be considered. Kutner and his co-authors, in their study of persons over 60 years of age, characterize the foreign born from Czechoslovakia, Hungary, Russia and Poland, and Italy as "health pessimists" who may be said to worry more about their health than other ethnic groups.<sup>9</sup> Two-thirds of our foreign-born males were Italian, Russian, or Polish, and the foreign born reporting a higher prevalence of chronic conditions may reflect the "health pessimism" of these groups.

Although the usual age of withdrawal from the labor force for urban males in the United States is thought of as 65 or older, 16.7 per cent of our study population, all of whom were below age 65 in 1962, were not in the labor force. It was among this group that we found the highest proportion reporting the presence of one or more chronic conditions—89.1 per cent—a significantly higher proportion (at the .05 level) than the 58.5 per cent among those males still in the labor force. In terms of the prospective nature of our study in the course of which labor force status change is expected to be one of the principal changes observed, this relationship may well be one of the more important findings. Inquiry among the men not in the labor force about their reasons for withdrawal from the labor force or for "retirement" elicited the information that for 70 per cent it was because of health. This raised the question, which will sub-



sequently be pursued, of the role of ill health in "early retirement" or earlier than expected withdrawal from the labor force.

#### DISABLING CONFINEMENT AND SOCIO-ECONOMIC CHARACTERISTICS

Many of the chronic conditions reported by the studied males were of a minor nature and even many of those perhaps thought of as being more serious may have had little effect on the person's activities or caused little disablement leading to confinement. Whether the prevalence of chronic conditions differentially reported by males with different socio-economic characteristics had differential consequences in terms of disabling confinement has been investigated (Table 3).

Among the males reporting chronic conditions, the educational level did not seem to be associated with disabling confinement resulting from the conditions reported. Nor was occupational status associated with confinement. However, disabling confinement resulting from reported chronic conditions had a significant inverse association (at the .01 level) with financial status, both in terms of family income and self-appraised financial position. More than half of those males in the lowest financial status groups with a chronic illness had some degree of disabling confinement and about one-quarter of them had experienced long-term confinement. In contrast, among the highest economic group about one-fifth had experienced some confinement and the proportion experiencing long-term confinement was relatively small.

Confinement in relation to place of birth showed the opposite association, although not statistically significant, from that between place of birth and reported chronic conditions: More native-born than foreign-born males reporting a chronic condition had experienced disabling confinement as a result of it. This situation seems to reinforce the idea that perhaps the reporting of the incidence of chronic conditions is related to ethnic background and cultural differences in concern for one's health. One cannot dismiss the possibility, however, that there may also be ethnic differences in the

TABLE 3. SELECTED SOCIO-ECONOMIC CHARACTERISTICS BY CONFINEMENT GROUP AMONG PERSONS WITH 1+ REPORTED CHRONIC CONDITIONS

<i>Socio-economic Characteristic</i>	<i>Total</i>		<i>Confinement Group</i>			
	<i>No.</i>	<i>%</i>	<i>None</i>	<i>Short Term</i>	<i>Medium Term</i>	<i>Long Term</i>
Total males	385	100.0	72.7	9.6	10.1	7.6
Education	382	100.0	73.0	9.7	9.7	7.6
8 years or less	227	100.0	73.6	8.8	11.0	6.6
9 through 12	116	100.0	72.4	10.4	6.9	10.3
13 or more	39	100.0	71.8	12.8	10.3	5.1
Most recent occupation	385	100.0	72.7	9.6	10.1	7.6
white-collar	155	100.0	72.9	12.3	7.7	7.1
blue-collar	230	100.0	72.6	7.9	11.7	7.8
Major lifetime occupation	384	100.0	72.9	9.4	10.1	7.6
white-collar	143	100.0	72.7	11.9	9.8	5.6
blue-collar	241	100.0	73.0	7.9	10.4	8.7
Family income, 1961*	354	100.0	70.9	10.5	10.7	7.9
under \$2,000	35	100.0	51.4	8.6	14.3	25.7
\$2,000-\$3,999	126	100.0	69.1	11.9	11.1	7.9
\$4,000-\$6,999	128	100.0	74.2	11.7	10.2	3.9
\$7,000+	65	100.0	78.5	6.1	9.2	6.2
Self-appraisal of financial pos.*	385	100.0	72.7	9.6	10.1	7.6
cannot make ends meet	38	100.0	55.3	10.5	10.5	23.7
just enough money to get along on	162	100.0	71.6	9.9	10.5	8.0
comfortable or well-to-do	185	100.0	77.3	9.2	9.7	3.8
Nativity	385	100.0	72.7	9.6	10.1	7.6
native	217	100.0	71.0	11.0	9.2	8.8
foreign-born	168	100.0	75.0	7.7	11.3	6.0
Labor force status**	385	100.0	72.7	9.6	10.1	7.6
in labor force	295	100.0	77.3	9.8	9.8	3.1
not in labor force	90	100.0	57.8	8.9	11.1	22.2

\* Significant at the .01 level.

\*\* Significant at the .001 level.

response to ill health, i.e., accepting or not accepting confinement to the house or to bed or even to the hospital in relation to a given experience of ill health.

Labor force status shows a statistically significant association (at the .001 level) with disabling confinement as a result of chronic conditions, as did the reporting of the presence of a chronic condition. Among those males reporting a chronic condition, less than one-quarter in the labor force had experienced some confinement from their reported conditions, in contrast with over two-fifths of the men not in the labor force. And among the latter, over one-fifth had experienced long-term confinement as compared with only about 3 per cent of those still working.

## CONCLUSION

The reporting of one or more chronic conditions among a group of males aged 60–64 years and living in Providence, Rhode Island, was most clearly associated with their labor force status and with their own appraisal of their financial position. Education, family income, and nativity status showed a statistically significant relationship (at the .05 level) with reported chronic conditions, a relationship not observed in terms of most recent or major lifetime occupation. Considering the consequences of reported chronic conditions in terms of disabling confinement to house, bed, or hospital, only financial status and labor force status showed a significant association. Other usual measures of socio-economic status—education and occupation—and nativity status did not show a significant association with disabling confinement.

## REFERENCES

<sup>1</sup> This investigation was supported by United States Public Health Service Grant No. HD-00671, from the National Institute of Child Health and Human Development. This is an expanded version of a paper to be presented at the United Nations World Population Conference, Belgrade, Yugoslavia, September 1965.

<sup>2</sup> Deming, W. Edwards, *SAMPLE DESIGN IN BUSINESS RESEARCH*, New York, John Wiley & Sons, 1960, Part II. Advice and assistance in developing the sampling design was given by Dr. Richard Maisel, currently Lecturer, Graduate School of Business Administration, New York University.

<sup>3</sup> The screening operation was initiated on May 1, 1962 and completed on September 17, 1962; interviewing was initiated in May 1962 and completed by October 31, 1962. Because these field operations were carried out over these periods of time, our sample could have been biased by the death of either spouse before the couple could have been identified as qualified respondents. To determine how much bias, if any, this field procedure introduced, a check was made in the Rhode Island Bureau of Vital Statistics of all deaths of white males born between May 1, 1897 and April 30, 1902, which had occurred between May 1, 1962 and October 31, 1962. This check showed that three qualified males had, in fact, died before they could be identified as members of our sample. Because it may also have happened that a qualified respondent was lost because of the death of his wife during the interviewing period, thereby excluding him as unmarried, a 20 per cent check was made of all married white females, aged 40–70, who had died in Providence during the interviewing period. (Less than 1 per cent of our female study population fell outside these ages.) This check revealed no additional qualified respondents.

<sup>4</sup> Using a wide range of information obtained from vital statistics records, city directories, and other sources, a comparison was made of the characteristics of the non-respondents with those of the respondents. In terms of the information obtained, the non-respondents did not differ in any significant way from the respondents. Although a number of reasons were given for not participating in the study, only three males and one female were not interviewed because they were ill. It was not possible to obtain information on the prevalence of chronic conditions among the non-respondents.

<sup>5</sup> The most complete statement of the procedures used in the United States National Household Health Survey is given in United States National Center for Health Statistics, *HEALTH SURVEY PROCEDURE: CONCEPTS, QUESTIONNAIRE DEVELOPMENT, AND DEFINITIONS IN THE HEALTH INTERVIEW SURVEY*, Washington, D.C., Public Health Service, 1964.

<sup>6</sup> Respondents were asked if the reported conditions had been diagnosed by a physician and what he had called them. Except for conditions such as hemorrhoids, varicose veins, and paralysis, which presumably can be reliably self-determined, only conditions which were stated as having been diagnosed by a physician are reported in this study.

<sup>7</sup> Hawkins, Norman G., *MEDICAL SOCIOLOGY*, Springfield, Illinois, Charles C Thomas, 1958, p. 73.

<sup>8</sup> Reported conditions considered to be life-threatening are malignant neoplasms, cerebrovascular accidents, heart disease, vascular disease, and cirrhosis of liver.

<sup>9</sup> Kutner, Bernard, Fanshel, David, Togo, Alice M., and Langner, Thomas S., *FIVE HUNDRED OVER SIXTY.*, New York, Russell Sage Foundation, 1956.

<sup>10</sup> United States National Health Survey, *OLDER PERSONS, SELECTED HEALTH CHARACTERISTICS, U.S., JULY 1957-JUNE 1959*, Washington, D.C., United States Public Health Service, 1960.