

# The Prevalence of Disability Recorded Through Four Monthly Sample Surveys

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SINCE DISABLING ILLNESS is a major threat to the economic security of workers and their families, the Social Security Board has been interested in obtaining current information on its prevalence and duration. Such information has been obtained from sickness surveys conducted from time to time in particular communities, among special population groups, or in a single area. Machinery has been lacking, however, for periodic enumeration of the disabled at regular intervals through a scientifically constructed, representative population sample.

The monthly survey of the labor force initiated by the Work Projects Administration, and now carried on by the Bureau of the Census, presented an unusual opportunity for obtaining periodic information on the extent of disability among the population canvassed. In 1942, the Bureau of Research and Statistics of the Social Security Board entered into an arrangement with the WPA, continued later with the Census Bureau, to obtain basic information on disabling illness in conjunction with the monthly survey. While limitation of funds has made it impracticable to repeat the sickness inquiry every month, so far it has been included in the surveys made in May, June, and August 1942, and February 1943.

## *Scope of the Inquiry*

The Monthly Report on the Labor Force is based on data for selected households in 64 counties in 45 States, and is designed to give a representative cross section of the labor force. It reaches more than 20,000 households including 55,000 persons aged 14 and over. The same households are canvassed for about 6 consecutive months. The sickness inquiries in May, June, and August 1942 were made with the same sample group of households; for February 1943 another sample was used. The survey is conducted in the second complete week of the month and covers, as the census week, the first complete week.

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To keep the sickness inquiry to a minimum, only two questions<sup>1</sup> were asked concerning each canvassed member of the household:

"Was this person unable to engage in ordinary activities for 1 day or more last week because of illness, injury, or physical or mental disability?" When the answer was "yes," it then was asked,

"For how many days was this person unable to engage in ordinary activities last week [the census week] because of illness, injury, or disability?"

An outstanding advantage of the methodology used in these surveys arises from the fact that the error resulting from lapse of memory is reduced to a minimum by limiting the inquiry to days of disability in the census week preceding the week of the canvass. On the other hand, these inquiries have certain limitations:

(a) Since the questions are so worded as to ascertain the extent of disability for usual or customary pursuits, many who would be unable to pursue gainful work but are not bedridden are not reported as disabled—that is, persons who may have enough disability so as to be excluded from the labor force are not counted as disabled if they can carry on their "normal" activities. Among persons under age 65 who were reported as "unable to work," only about 30 percent, on the average, reported disability on an average day during the census weeks.

(b) The survey is limited to the noninstitutionalized civilian population. It therefore does not include persons in penal institutions, hospitals, institutions for care of tuberculosis or mental and nervous disorders, homes for the aged or chronically ill, and the like.

(c) The inquiries provide no direct information on the aggregate duration of the disability, nor is there information to show whether or not the disability commenced or terminated during the census week.

(d) No information is obtained on the cause

<sup>1</sup> In February, 2 questions were added for persons reported disabled during the entire census week: "Was this person still disabled on the day of the canvass," and (if so) "was he receiving or expecting to receive a cash sickness benefit in lieu of lost earnings?"

**Table 1.—Estimated number and percent of persons in the noninstitutional civilian population aged 14 and over who were disabled for their usual activity, on an average day in census week, by employment status**

Employment status	Number (in thousands)	Percent
Total.....	3,000	3.1
Employed.....	1,000	1.9
Unemployed.....	260	11.1
Engaged in home housework.....	760	2.5
In school.....	100	1.3
Unable or too old to work:		
Under age 65.....	500	31.0
Age 65 and over.....	400	10.7

of disability, and, as in almost all other sickness surveys, the member of the household furnishing the information is the judge as to what constitutes disability.

### *Prevalence of Disability*

From the survey returns for the 4 months, it is possible to estimate the prevalence of disability—that is, the percentage disabled on an average day—for the total civilian noninstitutional population aged 14 and over, and for various groups in that population, classified by employment status (table 1). In these estimates equal weight has been given to the returns for each month, under the assumption that February represents the winter, May the spring, and August the summer; and that June, being intermediate between May and August, is perhaps not unlike an autumn month with respect to prevalence of illness. It is probable that this equal weighting unduly lowers the estimated extent of illness for an average day of the year, since 3 of the 4 census weeks were in months when there is relatively little illness. Taking this seasonal limitation and other recognized limitations into consideration, the figures developed here should be regarded as minimum estimates of disability for the noninstitutional civilian population in ages 14 and over.

On an average day, at least 3 million persons—3.1 percent—aged 14 and over are sufficiently disabled to be reported unable to engage in their usual activities. Among persons aged 14 and over who were reported as having a gainful job, at least 1 million were away from the job on an average day because of disability; for February 1943 the number was 1.4 million. These figures, however, fail to reflect the full loss of manpower because of disability. Many of the unemployed

would have been gainfully occupied except for disability, and the majority of persons under age 65 who reported themselves unable to pursue gainful work should be counted among potential workers. Taking these aspects into consideration, the total loss to the labor force through disability is more accurately represented by adding to the million disabled among the employed about 250,000 disabled workers for whom no job was being held (reported as disabled and “unemployed”) and all the 1.6 million persons under 65 years of age who were reported as “unable to work,” though less than one-third of these latter were reported unable to pursue their usual activities on an average census day. Thus in all about 2.8 million potential workers, or approximately 5 percent of the 1942 labor force, were reported unable to pursue gainful work because of disability, exclusive of potential workers in institutions of one kind or other who are disabled.

It should not be assumed that the loss of 2.8 million potential workers on each average day represents the total burden of illness on the productive capacity of the Nation. It has been conservatively estimated that for every absence on account of illness there are at least two workers who are sufficiently ill to have only 50–90 percent of their normal productivity but who continue working to the detriment of themselves and society.<sup>2</sup> Besides these workers, there are large numbers of handicapped persons with reduced capacity for work. Finally, there is the loss from premature death. To assess the total weight of sickness and accidents on the productive capacity of the Nation, all these should be taken into consideration.

There were marked variations in the percentage of persons in the various employment status groups who were reported disabled on an average day within the census week. The lowest percentage of disability was among the school group, 1.3 percent.<sup>3</sup> This is not surprising, considering the well-known relationship between age and disability. Next in increasing order of extent of disability are the employed, of whom 1.9 percent was reported disabled. This figure also is not surprising, since persons with a day or more of disability in the census week who were reported as

<sup>2</sup> Rankin, W. S., “The Economics of Medical Service,” *American Journal of Public Health*, Vol. 10, No. 4 (April 1920), pp. 359-365.

<sup>3</sup> In August the group classed “other” for employment status was included with “in school.”

employed were those who had already returned to their jobs at the time of the canvass or who knew that their jobs were being held for them. By and large, jobs will be held only for a limited time; consequently, most persons with prolonged disability who are actually or potentially in the labor force will be reported as unemployed or unable to work. The third group comprises persons engaged in "home housework"; the percent disabled among these was 2.5. It is highly probable that less rigid criteria of ability to engage in usual activities are applied to this group than to a group such as the employed. Had the same criteria been applied, a much larger proportion of these would have been found disabled. These three groups have rates below the general disability rate—3.1 percent—for all persons aged 14 and over.

The remaining groups show a much higher proportion of persons unable to pursue usual activities on an average day. In increasing order they are: persons "too old to work" in ages 65 and over, 10.7 percent; the unemployed—i. e., persons who were looking for work or anticipated looking for work upon recovery—11.1 percent; and persons under 65 years of age and "unable to work," of whom 31.0 percent were reported disabled on an average census day. In considering generally the actual extent of disability among the noninstitutional civilian population aged 14 and over, at least all those in ages under 65 who were reported "unable or too old to work" should be counted among the disabled. Their inclusion gives a total of more than 4 million disabled on an average census day instead of the 3 million shown in table 1.

#### *Duration of Disability*

The average duration of disability (table 2) is restricted to disability within the census week. For all persons represented by the survey the average is 4.4 days or nearly two-thirds of the possible maximum. The lowest figure—3.2 days—is for those in school. The average for the employed is 3.7 days and for those engaged in own home housework, 4.1 days. For the group "unable or too old to work" and for the unemployed the averages are 5.7 and 6.1 days, respectively.

These averages are strongly affected by the proportion of persons in the various groups who were reported disabled during the entire week. For all persons, irrespective of work status, 42 percent of

**Table 2.—Percentage distribution of disabled persons<sup>1</sup> within each employment status group, by number of days of disability in census week**

Days during census week	Employment status					
	All persons	Em- ployed	Unem- ployed	En- gaged in own home house- work	In school	Unable or too old to work
Total.....	100.0	100.0	100.0	100.0	100.0	100.0
1 day.....	10.5	25.8	5.4	14.9	30.8	4.1
2 days.....	16.8	20.0	4.5	10.0	23.5	0.6
3 days.....	12.1	12.1	3.1	16.4	12.1	8.7
4 days.....	6.5	6.7	4.8	8.5	6.2	4.7
5 days.....	3.7	3.7	2.1	5.0	2.2	3.0
6 days.....	2.5	3.1	3.3	2.9	2.6	1.0
7 days.....	41.9	28.6	70.8	32.4	22.6	68.9
Average number of days of disability.....	4.4	3.7	6.1	4.1	3.2	5.7

<sup>1</sup> In the noninstitutional civilian population aged 14 and over.

those reported disabled were disabled for all 7 days. For the "in school" group, the proportion disabled during the whole week was 23 percent; for the employed, 29 percent; for those engaged in own home housework, 32 percent. The corresponding figures for persons unable or too old to work and for the unemployed were 69 and 77 percent, respectively. In considering these variations one must remember that the criteria of disability differ for the various groups. This fact undoubtedly explains the more favorable showing of the group "unable or too old to work" as compared with the unemployed. It should be emphasized again that the durations given are with reference to the census week. Thus, for persons who reported 1 day of disability, that day might represent the last day of a disability which had lasted weeks, months, or even years, or it might represent the first day of disability which might last indefinitely.

#### *Sex, Age, and Type of Community*

Variations in the extent and duration of disability were found also with respect to sex, age, place of residence, and season. Those variations undoubtedly are markedly influenced by the limitation of the observation period to the census week and by the definition of disability—inability to pursue one's usual activities. Some of the variation may be explainable also in terms of sampling errors, especially for the categories in which the sample is relatively small.

Among both males and females in the civilian noninstitutional population aged 14 years and over, 3.1 percent were disabled for their customary

**Table 3.—Percent of men and women <sup>1</sup> disabled on an average day in census week, and average number of days of disability experienced by all persons disabled at some time in the week, by age group**

Age group	Percent disabled on average day		Average number of days of disability among all persons disabled in census week	
	Men	Women	Men	Women
Total, 14 years and over.....	3.1	3.1	4.4	4.4
14-19.....	1.6	1.9	3.9	3.0
20-24.....	2.3	2.5	3.9	4.2
25-44.....	2.2	2.5	4.0	4.2
45-64.....	3.6	3.3	4.7	4.4
65 and over.....	7.4	7.3	5.1	4.0

<sup>1</sup> In the noninstitutional civilian population aged 14 and over.

pursuits on an average day in the census week (table 3). That this figure is the same for the two sexes must be attributed to a difference in the criteria of disability for persons in the labor force, which includes most of the men, and for those in less exacting pursuits like housework, which includes most of the women. The prevalence of disability is least in ages 14-19; for both sexes, it increases progressively with age, though these studies disclose no significant difference between the age groups 20-24 and 25-44 years. The sharpest increase appears at age 65 and over, when the rate is 7.4 percent for males and 7.3 percent for females, more than twice the average for the entire group aged 14 and over. There is also a somewhat higher prevalence for females in ages under 45 than for males, a difference which can undoubtedly be attributed to conditions related to childbearing.

For duration of disability in the census week among persons who were disabled a day or more, the average is identical for men and women. There is also a progressive increase in the average duration with increase in age, though the progression is much more moderate than the rise in prevalence with age; for ages under 45, there are no substantial age differences for males and very little among females.

Among the employed, irrespective of sex, in the age groups 14-24, 25-64, and 65 and over, the prevalence of disability is 1.4, 2.0, and 3.3 percent, respectively. The age gradient is somewhat less steep than for the population at large, since persons who remain in jobs, particularly at the more advanced ages, are undoubtedly in better physical condition than are most persons in that

age group. The variation of average duration of disability with age among the employed is even less than that observed among persons in the general population.

Differences in the prevalence of disability and duration of disability within the census week are found among groups classified on the basis of type of community. Of the noninstitutional civilian population aged 14 and over, the percent disabled on an average day and the average duration of the disability during the census week are shown in the following tabulation:

Type of community	Percent disabled on an average day		Mean duration of disability (days) in census week among those disabled at some time in week	
	Males	Females	Males	Females
5 largest cities.....	3.0	3.1	4.9	4.4
Urban.....	2.8	3.0	4.4	4.4
Rural.....	3.2	3.3	4.3	4.3

For males, reported disability is highest in the five metropolitan centers included in the survey—

**Table 4.—Percentage of all persons in the noninstitutional civilian population aged 14 and over and of employed persons reported disabled during specified census week, by number of days of disability within the week**

Days disabled	Census week			
	May 3-9, 1942	June 7-13, 1942	Aug. 2-8, 1942	Feb. 7-13, 1943
	General population			
Total.....	100.00	100.00	100.00	100.00
0 days.....	94.57	95.61	94.22	94.04
1 day.....	1.06	.66	.60	.92
2 days.....	.86	.77	.71	.67
3 days.....	.69	.49	.48	.72
4 days.....	.29	.29	.27	.43
5 days.....	.20	.16	.16	.22
6 days.....	.09	.17	.12	.12
7 days.....	2.18	1.79	1.74	2.63
Unknown.....	.06	.06	1.70	.05
	Employed persons			
Total.....	100.00	100.00	100.00	100.00
0 days.....	96.35	96.80	96.33	94.89
1 day.....	1.04	.78	.73	1.22
2 days.....	.75	.60	.64	.99
3 days.....	.52	.28	.32	.66
4 days.....	.21	.21	.20	.36
5 days.....	.13	.11	.13	.18
6 days.....	.08	.16	.09	.12
7 days.....	.89	.90	.86	1.63
Unknown.....	.03	.04	1.80	.05

<sup>1</sup> Some August schedules were lost and 1 county was not canvassed for sickness.

New York, Chicago, Philadelphia, Detroit, and Los Angeles—and lowest in counties with a population of 45,000 or over, designated as urban. For females the differences are much smaller, with the greatest prevalence in rural counties, i. e., those with less than 45,000 population, and the least in urban counties. In the average duration of disability in the census week, there is no significant difference for the groups of women in the three types of areas and little for the men.

**Seasonality**

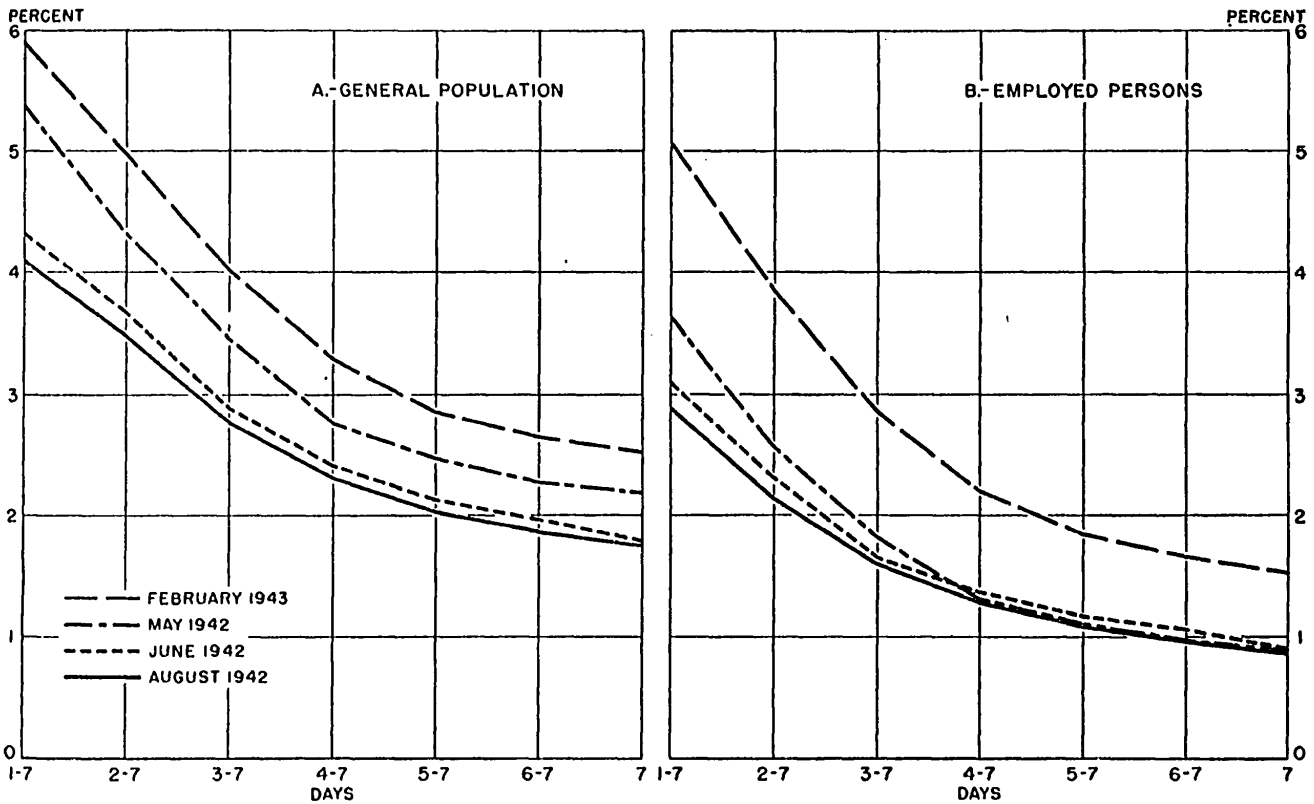
Both for all persons in the population sampled and for employed persons, there were marked variations in the percentages disabled in the various survey months (table 4 and chart 1). The relatively high percentage of replies classified as "unknown" in August reflects the loss of some schedules en route and failure to conduct the special sickness inquiry in one county in that month. Other variations are attributable to seasonal factors and to sampling errors in reporting. For

employed persons there is an additional factor in the change in the age, sex, and occupational composition of the sample between May 1942 and February 1943.

When cases for which data were not ascertainable are excluded, August shows distinctly the least amount of disabling illness and February the most. Among all persons aged 14 years or more, 4.1 percent reported 1 or more days of disability during the August census week, while for February the corresponding percentage was 5.9. August was also the most favorable month for employed persons; 2.9 percent reported 1 or more days of disability, compared with 5.1 percent in February.

The relative differences between February and August are somewhat greater for employed persons than for all persons aged 14 and over. Both for the general population and for employed persons, the February to August differences decrease steadily as disabilities of shorter duration in the census week are excluded (chart 1). One marked difference in the seasonal pattern of sick-

**Chart 1.—Percent of all persons aged 14 and over in the noninstitutional civilian population and of all employed persons who were reported disabled for specified number of days during 4 census weeks, May, June, and August 1942, and February 1943**



ness between the employed and the entire population is that in the former there is relatively little difference between the observations for the month of May and those of June and August with respect to disabilities lasting 4 days or longer.

The seasonal pattern differs somewhat for persons in different age groups (chart 2). The seasonal effect is most pronounced among persons in younger ages, especially in disabilities of short duration. Thus, for the short-term disabilities, the February excess of disability over August definitely diminishes with advancing age. On the other hand, for the longer durations of disability in the census week, the decrease in the difference between the February and August rates is less noticeable with age and is actually reversed for those in ages 65 and over. On the basis of these limited observations, it would therefore seem that the marked seasonality of disability among persons in younger ages is due to the relatively large number of disabilities of short duration.

For the aged, who suffer disabilities of relatively longer duration, the effect of season is less marked.

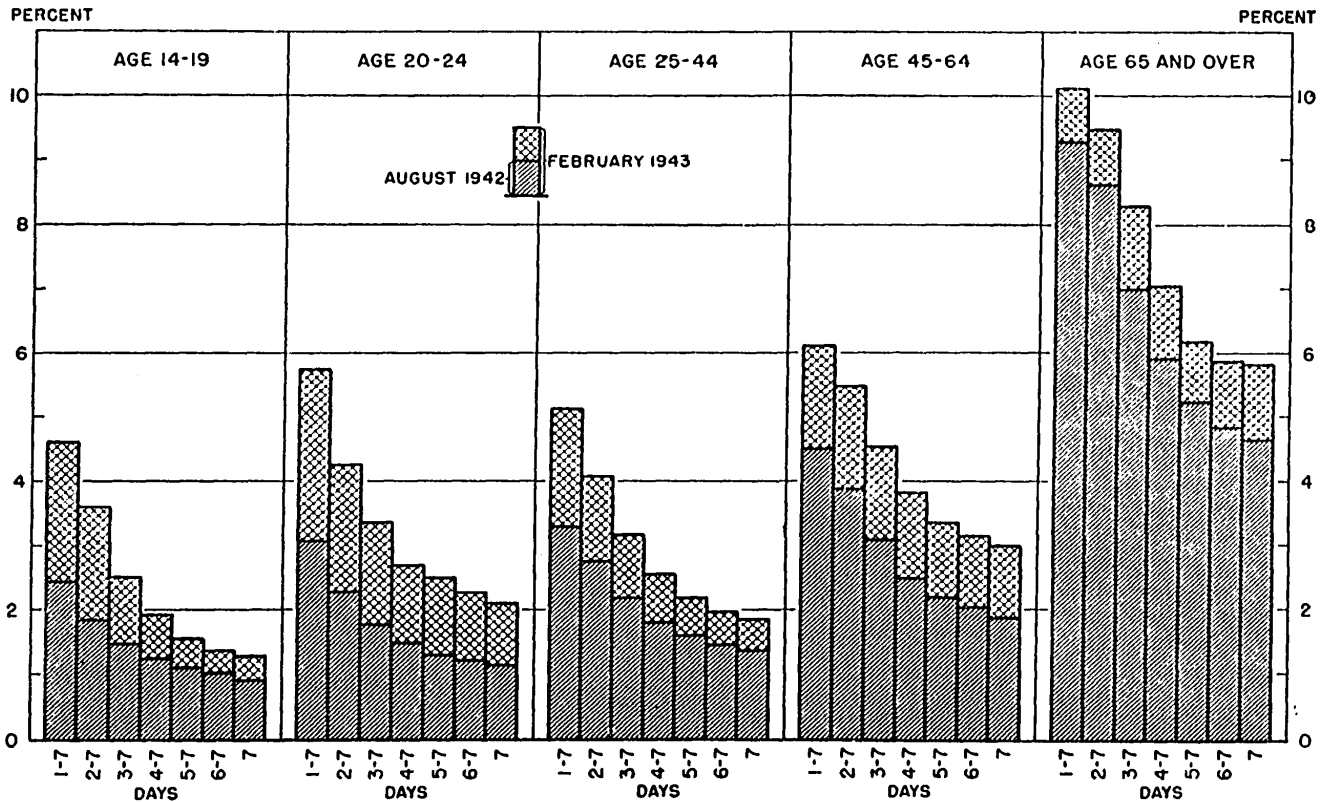
Moreover, their short-duration disabilities are if anything less seasonal than disabilities which last 7 days or longer. This probably indicates that relatively few disabilities among the aged last less than a week and that recovery is somewhat slower in winter months than in summer.

The influence of seasonality among employed persons also declines for persons in older ages (chart 3). This decline is at a much lower rate than that observed in the general population. Among the employed, as in the general population, the younger persons show a more marked seasonality in illnesses of short duration than in illnesses spanning the survey week. Among the aged employed, the seasonal effect on short-term disabilities in the census week is almost nonexistent.

### Incidence and Duration

Reporting of disability in these surveys was restricted to that within the census week. By making certain reasonable assumptions, however, it is possible to derive other measures of disability, namely, incidence—the frequency with

Chart 2.—Percent of all persons in specified age groups in the noninstitutional civilian population who were reported disabled for specified number of days during the 2 census weeks, August 1942 and February 1943

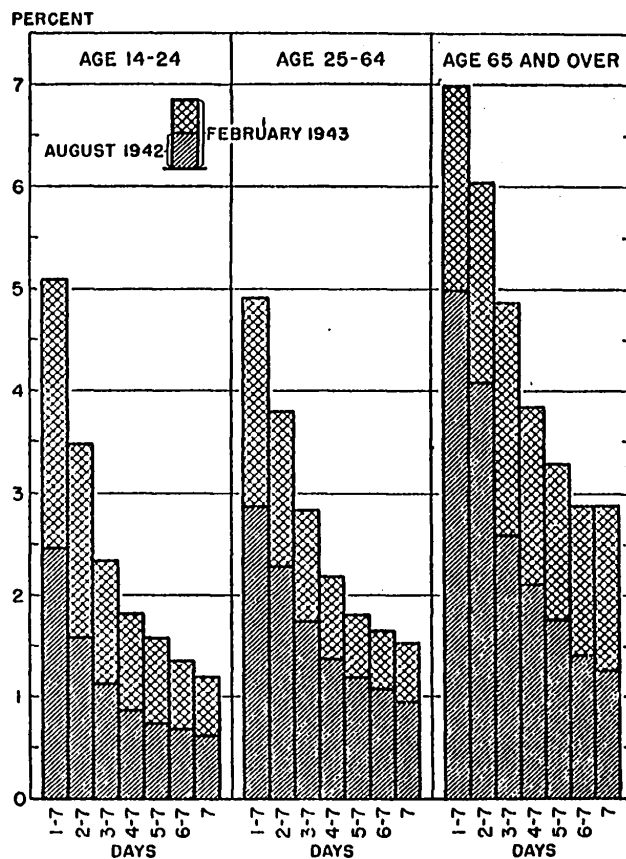


which cases of disability occur—and the estimated duration of disability, without limiting such derivative estimates to the week of the canvass. Because of the interrelations between work status and duration of disability, such extrapolations give results which have many limitations and elements of uncertainty. It may be sufficient to indicate that when the returns are translated into cases of disability per 100 persons exposed per year there appears to be an incidence rate of about 110 cases per 100 persons. Again, on the basis of certain permissible assumptions, the average duration of disability per person per year derived from these surveys is 11 days. The limitations of the study must not be overlooked in evaluating these generalized measures of incidence and average duration of disability per person per year.

The present inquiries indicate a lower rate of disability than that for the National Health Survey—3 million as compared with 6 million for the latter.<sup>4</sup> This difference undoubtedly is due to differences in the definition of disability and in the time and scope of the surveys. The definition used in the National Health Survey would have classified as disabled nearly all the persons under age 65 who reported, in response to the present inquiries, that they were able to follow their usual pursuits but unable to work; in the present inquiry these persons were not classified as disabled. The National Health Survey included persons of all ages, instead of limiting itself to those 14 and over. Moreover, it included persons in hospitals and was made almost wholly in winter months when morbidity is higher than in most of the months used for the present sample studies. In addition, the National Health Survey was made in a period of widespread unemployment, when relatively slight disabilities may have kept potential workers from seeking or getting jobs, while in 1942 many employers had relaxed

<sup>4</sup>"The National Health Survey," *Public Health Reports*, Vol. 55, No. 11 (Mar. 15, 1940), p. 445. When appropriate corrections are made in the returns of the National Health Survey, the resulting prevalence for the entire population, on an average day of the year, becomes 7 million. See Falk, I. S., and Sanders, B. S., "The Prevalence of Disability in the United States With Special Reference to Disability Insurance," *Social Security Bulletin*, Vol. 4, No. 1 (January 1941), pp. 2-8.

Chart 3.—Percent of all employed persons in specified age groups who were reported disabled for specified number of days during 2 census weeks, August 1942 and February 1943



their requirements. When allowance is made for all these factors, the results of the two surveys are roughly comparable.

Being relatively inexpensive, these periodic field canvasses—the results of which have been discussed here—can be made readily, especially because the disability inquiries are only part of the regular labor force survey. Despite all their limitations, they give results of considerable value in gauging the increase or decrease in disability and, when repeated frequently, will add significantly to the fund of knowledge of the variations in disability in different periods of the year, among different sections of the county, and among different occupational or industrial groups.