

# The Relation of Extended Life to Extended Employment since the Passage of Social Security in 1935\*

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“THE TROUBLE WITH OUR TIMES,” IT HAS BEEN said, “is that the future is not what it used to be.” That seems to be the reason why we are all here today. Our booming economy 15 or 20 years ago permitted expansion of social insurance and pension programs while we built schools. A stagnating world economy today saps our confidence about providing for workers and retirees.

This is the first time that the National Institute on Aging has been called upon to contribute knowledge that would assist in developing Social Security policy. The Research on Aging Act (P.L.93-296, May 31, 1974) established the Institute “for the conduct and support of biomedical, social, and behavioral research and training related to the aging process and the diseases and other special problems and needs of the aged.” The Institute’s work embraces a wide variety of research—biomedical, psychosocial, demographic, and economic.

Both the Research on Aging Act and the Social Security Act aim at assuring the health of our aging population. By working to prevent old-age poverty, which has a long-established association with poor health, the cash-benefits portion of the Social Security Act can be considered health legislation just as much as Medicare, which reimburses

\* Statement before the National Commission on Social Security Reform, June 21, 1982.

for hospital and medical services. The costs of these services reflect developments stemming from biomedical research. To the extent research contributes to prevention of disease and disability, as happened through the antipolio vaccine, it helps reduce costs to society and individuals, enhance self reliance, and ease financial pressure on public and private sectors.

We can assume that reduction in old-age poverty has had positive implications for the survival and health of the elderly. If this is so, we must also assume that any increase in poverty stemming from changes in program and social conditions will have a negative impact on the health of the elderly population. I suspect that recent upturns in the old-age poverty rate eventually will show such an effect. Similarly, improved access to health care services made possible by Medicare and Medicaid is credited with helping to improve the survival and health of the elderly population. Again, we may expect that curtailments would be likely to reverse this progress.

This commission is being asked to find ways of preserving the Social Security system in the face of economic conditions, current and expected fiscal constraints, and demographic changes. The possibility of economies through raising the age of eligibility for full benefits has been proposed. Such a course contemplates that people would be able and willing to work beyond age 65 and that jobs would be available.

Mr. Robert J. Myers, executive director of the commission, has asked me to focus my remarks, in his words, on "the work ability of the aged population as it has changed over the years and as it might change in the future if mortality continues to decrease and life expectancy to increase." In particular, he wanted me to comment on certain highly optimistic conclusions advanced in some scientific quarters about illness reduction in later life.

While we must guard against undue optimism about immediate improvement in the health of the elderly, we should not forget that most of them are in reasonably good health. The old notion that most are ill is an error. My impression, based on clinical experience and general observation, has been that a person at age 65 today is more likely to be in good functioning health—and therefore to be more able to work—than his or her counterpart of three decades ago when I was a medical student.

Over that time period, it has become clearer that many of the effects previously attributed to unavoidable processes of aging are actually

the results of disease and, therefore, likely to be amenable to amelioration if not prevention. This includes senile dementia, one of the diseases people fear most as a consequence of getting older. Gerontologic and other studies have shown that most of the functional declines measured in healthy people as they age have no practical meaning in terms of performance of ordinary tasks of work and self care. This observation appears to hold true for the years well after conventional retirement. It is a powerful reason for instituting health maintenance practices throughout the life span. It is also true, however, that vulnerability to disease rises with age. At some point it is hard to manage an independent life. Especially after age 75, more and more people require supportive medical and social services beyond what families can provide, if they even have families to rely on.

How can we judge when an individual is at high risk of functional impairment although superficially well? The assessment tools for making sound prognoses of this sort, not only for medical but also occupational reasons, are in their infancy. The Congress recently asked the National Institutes of Health for help in evaluating the mandatory retirement rule for commercial airline pilots. Our consulting experts found no medical justification for the age-60 rule, but they did not recommend its elimination. Instead, they suggested that it be waived on a limited basis to permit biomedical studies of aging pilots and their ability to handle the tasks of flying. In this way, some objective criteria for recommending retention or retirement might be devised without risk to passenger safety and without unfairness to pilots.

In discussing morbidity, we are not necessarily talking about ability to work. For example, an individual with arthritis is counted in the morbidity rates. But that person may be able to do more, some, most, or all of the tasks required for self care and paid employment or other work. Adaptation of the task and work environment (such as barrier-free access for wheelchairs) affects the work ability of the individual. The adaptation of tasks and environments depends on the willingness of management, labor, and other participants in the economy to make the changes in order to keep these people in the labor forces despite their morbidity.

An assumption that appears to have contributed to the proposal to raise the full retirement age is that because Americans are living longer they are living longer with less morbidity. The National Commission on Social Security took note of these views by Dr. James Fries of Stanford University.

Dr. Fries (1980) contradicts what he calls the "conventional anticipation of an ever older, ever more feeble, and ever more expensive-to-care-for populace. These predictions suggest that the number of very old persons will not increase, that the average period of diminished physical vigor will decrease, and that chronic disease will occupy a smaller proportion of the typical life span, and that the need for medical care in later life will decrease." He bases these forecasts on a demonstration that the length of human life is fixed and evidence that chronic disease can be postponed.

Let us compare the predictions, one by one, with data available to the National Institute on Aging:

- "The number of very old persons will not increase." The trend now is a sharp increase in numbers for the population aged 85 and older. An estimate of 3.3 million in the year 2000 has been superseded by an estimate of as many as 6.7 million, reflecting a substantial fall in mortality rates. Moreover, while the entire population over 65 will double between 2010 and 2019, it will nearly double again in the period 2020 to 2029. These estimates assume no decline in mortality rates.
- "The average period of diminished physical vigor will decrease." The bulk of evidence does not show that this is happening now. It is not clear that morbidity rates in the older population are improving. While mortality from heart disease and stroke has gone down, the data do not clarify whether this means that disease has been prevented and people are not at risk, or whether more people are surviving with impairments, thanks to medical and other support. A number of leading demographers and epidemiologists share the view that morbidity in later life probably is rising. One recent paper (Colvez and Blanchet 1981) indicates that morbidity and attending disability increased rapidly from 1966 to 1976. The increases were sharpest for those aged 45 to 64.
- "Chronic illness will occupy a smaller proportion of the average life span." The average life span is increasing, but it is not clear when it will plateau. The Institute's associate director for epidemiology, Dr. Jacob Brody, has calculated that life expectancy will continue rising. Social Security actuaries, in one of several projections, estimate the average life span at birth for women born 100 years from now to be about 94. The estimate for men

is 82 (Social Security Actuary Study #85). The bulk of the data show diminishing age-specific mortality and either flat or rising morbidity. Under these conditions, the proportion of the life span with chronic illness is expanding.

- "The need for medical care in later life will decrease." This view does not follow from the current data.

While I criticize Dr. Fries's statements as predictions, I would agree with some of them as goals. The National Institute on Aging is supporting scientific efforts to shrink the proportion of the life span dominated by chronic disease.

There are some data that tend to support the Fries outlooks. The Framingham Heart Study is a long-term study made feasible by the stability of the white, middle-class volunteer group. It is not a representative population sample. About 1,600 married couples were followed over the years at Framingham. Recently, a parallel study was made of their offspring at ages for which data were available on the parents. This made it possible to compare parents and offspring at the same ages. In terms of three major risk factors for coronary heart disease, the differences were striking. The offspring had lower blood pressure, serum cholesterol values, and extent of cigarette smoking. The findings suggest that the offspring are healthier than their parents (Feinleib et al. 1975).

To be able to show trends bearing on the optimistic forecasts of Dr. Fries, we would need dependable indicators of population health, especially to take morbidity and mortality into account. There are conceptual and other problems that must be overcome before they can be developed. I would be eager for the development of an index of average health expectancy, a parallel to average life expectancy.

It is possible that changes in lifestyle, including habits of exercise, diet, and stress management, may alter the morbidity picture. Cessation of cigarette smoking reduces risk of disease and death. How can we detect morbidity trends in this direction? One way is to interview people on their perceptions of health status. The National Health Interview Survey, conducted by the National Center for Health Statistics, does this. Another witness today will be able to tell you about the survey, its findings, and limitations. One limitation is that it depends on people's perceptions and recollections. Another method, used by the center, involves physical examination. In two years, the National

Health and Nutrition Examination Survey—which examines as well as interviews—will be reporting on findings in people who participated in a previous round of examinations about a decade ago. This study will give us some good trend information on morbidity. The National Institute on Aging has small population studies in progress that may add to the picture, especially the picture of mental diseases in the older population.

Here are a few points I would like you to keep in mind:

1. Mortality trends do not directly coincide with morbidity trends.
2. Morbidity data based on what people say about their health status may be misleading. People under-report; they tend to report less illness than they actually experienced. However, if this bias is consistent, the responses may be useful in indicating trends.
3. It is possible that a population reporting more sickness this year was just as sick last year but wasn't as perceptive or as willing to report or seek services for their problems. A rise in illness reports may not signify a true loss in health status.
4. Given these caveats, it appears that morbidity rates are rising and that the drop in mortality rates means a growing burden of serious sickness problems in the oldest population groups.
5. In individuals, although gross impairment can be assessed, methods are lacking to detect subtle changes in functional health that have major implications for ability to work and the timing of retirement.
6. Patterns of human performance relative to occupational history must be established if policy making is to be attuned to the great diversity of the elderly population. For example, a veteran of arduous factory work has an occupational history and retirement health expectancy quite different from a physician like myself or a white collar worker.

I would like to explore some reasons why current data are not definitive about health trends in the elderly population. Age-specific mortality rates appear to have improved for the elderly, especially cardiovascular mortality rates. What this statement means is that for each year of life the rate of death from heart disease in our population has gone down. Heart disease continues to be a major killer. However, more people are surviving heart attacks. This is one major reason why the very old population is increasing.

As I have indicated, data on morbidity—the rates of sickness—do

not tell us whether the improvement in mortality signifies diseases prevented or diseases moderated. Are the people who would have died under the old circumstances in good functional health? Or are they alive but impaired and requiring medical and social support services? The available data do not tell us clearly. Another question is whether there has been any change in morbidity rates for the kinds of people who have not required survival assistance. It is conceivable that an improving trend for these people has occurred but is masked by the assisted population.

Resolving these issues would assist us in assessing policy options that have some logical justification. For example, data showing improvement in functional health would bolster proposals to raise the age at which full benefits should be paid. On the other hand, data showing less ability to carry on normal activities at the proposed ages would argue against such a policy. I am assuming that one qualification for a desirable policy is that it does not, as a side effect, add to the burdens of ill people. Since one consequence of raising the age of eligibility for full benefits may be a reduction in benefits available at ages down to 62, it is important to determine the impact on the ability to survive and the quality of life.

Two major retirement patterns should be differentiated. In one, the healthy older worker continues at a job until retirement at full benefits. In the other, a worker retires in poor health after chronic unemployment, or in both circumstances, which are associated with poverty. It is generally accepted that some proportion of early retirees retire in good health from a job while some retire because of chronic unemployment and ill health and, therefore, are not voluntarily retired. The proportions are hard to document. In a study of rubber workers who retired early, mortality was higher than expected (Haynes, McMichael, and Tyroler 1980). For individuals who retire because they are unable to get a job or are sick, Social Security benefits are reported to be the predominant or sole income source.

These early retirees tend to be nonwhites and in physically demanding occupations. Their Social Security benefits tend to be low, reflecting a history of lower earnings and less coverage. Higher rates of morbidity are reported for blacks and other minorities, and their life expectancy tends to be less than that for whites (figure 1).

From a health standpoint, it would be justified to incorporate into a policy promoting later retirement some safeguards against aggravating

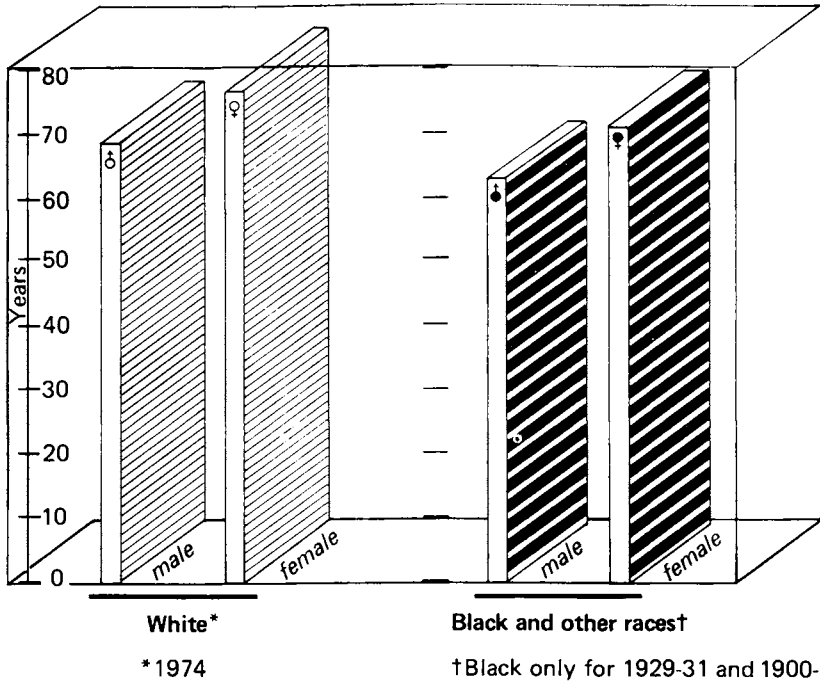


FIG. 1. Life Expectancy at Birth.

Source: U.S. Department of Health and Human Services. Vital Statistics of the United States, 1976. Vol. 2 (Mortality), Part A, Section 5. PHS No. 80-1101. 1980. Washington.

the conditions facing early retirees or individuals with disabilities. Current policy appears to take a severe posture on awarding Social Security disability benefits. To qualify for an award, an individual must be incapable of engaging in *any* gainful activity. The denial rate for recent applications has been 70 percent.

Particular note also should be taken of the conditions experienced by older women. Many reach the older ages without having been in the work force, or having participated for relatively brief periods. If they have had covered work, their Social Security benefits are low. As widows, their benefits also are low. Their morbidity rates are higher than for men.

The diversity in health status and socioeconomic conditions affecting health status and longevity deserves emphasis. There is no medical justification for designating a specific age for retirement. Any solution to policy issues that assumes homogeneity of the elderly population is bound to be unfair.



The context for policy making has changed in recent years. We are emerging from long-standing prejudice against the elderly, what I have called age-ism. Myths and prejudices about older people's capacities for productive and satisfying activity have put them on the sidelines of our work-oriented society. Age-ism has cost them opportunities for expression, status, and income—losses that have health implications.

We know something about how to keep people well, functioning, and productive after age 65 and into the eighth and ninth decades of life. Studies of behavioral and biomedical factors are showing us how to maintain health and productivity. We are learning about maintaining health by changing smoking and drinking behavior, by slowing age-related declines in cognition and memory, by enhancing productivity and creativity through incentives and retraining opportunities, by forestalling or reversing old-age disability through geriatric medicine, by alleviating illness through social supports and coping behavior, and by reducing disabilities through regimens that reward and reinforce activity and independence. Developing and applying this knowledge should be considered as part of comprehensive retirement planning for the nation.

Social Security was inaugurated in part as a measure for moving people out of the work force, to make room for the young. Among other messages, this policy implied a devaluation of the older worker. The idea of raising the age of retirement may bespeak a new respect for the older person, recognition of the importance of work to the older person's mental and physical health, and the needed contributions older people can make to the nation. However, it carries the risk of being perceived as a penalty when compared to the current arrangement. People who can continue to work after 65 earn larger benefit payments. Approaches that emphasize choice are a plus from a mental health point of view.

But what about those who have a health, occupational, gender, or other disadvantage? Can policy be devised without carrying any implied devaluation of older people who cannot stay at work? What emphases will be placed on education and retraining to assist people in coping not only with functional problems but also with technological changes that bear on their type of work and skills?

Retirement decisions are being made around the focal age points of 62, 65, and 68 without any real understanding of many impacts on human health and human performance. We must not forget that

incentives and rewards play a role in ability to work, just as much as functional capacity. Biomedical *and* psychosocial factors need to be explored in studies of human performance.

These studies will be increasingly needed as our population ages. And science will have to provide a data base for policy making in this area, not only to free us of misconceptions and unnecessary limitations but also to develop the kinds of flexibility in our retirement programs that help us to control costs, maintain health, and promote full expression of human potentials.

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# Work Ability of the Aged under Conditions of Improving Mortality\*

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THE DESIGNATION OF A NORMAL RETIREMENT age has been linked to the age at which people are no longer "sufficiently healthy to function in their jobs." This linkage was accepted by both the proponents and the opponents of raising the retirement age in the March 1981 report of the National Commission on Social Security. The majority position was: "The Commission anticipates that increased longevity will be accompanied by a corresponding increase in active life. . . . Expert opinion in the field of research on aging holds that the period of 'diminished vigor' associated with aging will decrease so that 'chronic disease will occupy a smaller proportion of the typical life span' " (National Commission on Social Security 1981, 126). On the other hand, a minority of the commission contended that "the evidence does not support any claims that longer life is equivalent to longer years of good health. . . . The evidence certainly does not support speculation that the incidence of *good* health is increasing" (National Commission on Social Security 1981, 331). Unfortunately, the current state of knowledge does not permit a definitive resolution of this controversy. I shall attempt, however, to clarify some of the issues.

We shall focus on the populations in the age groups between 50

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and 69 years of age because the experiences of these groups are most relevant to the issue of retirement age. As can be seen from figure 1, the death rates for women in this age range have been declining rather steadily since 1950. In fact, death rates for women of this age began to decline rapidly and steadily in about 1935, so this trend has been operative for nearly 50 years (Moriyama 1964). We can see from figure 2, on the other hand, that the rapid downward trend in death rates for men between 50 and 69 years of age has been in effect only for the past 15 years. We should also note that at each age in this range, the death rate for men is twice as high as the death rate for women.

It has been suggested that the decline of death rates for this age segment is tantamount to improved health or to a reduction in the prevalence of ill health and work incapacity (Clark and Barker 1981; Fibiger 1980). What light do the data shed as to the validity of this supposition? While definitive long-term trend data bearing on health status are not available, figure 3 permits us to examine short-term trends. We see there that the proportion of men in the 50 to 69 age segment reported as being unable to work because of illness increased between 1970 and 1980. Remember, this was the period of the rapid decline in death rates for men of that age. Furthermore, the fragments

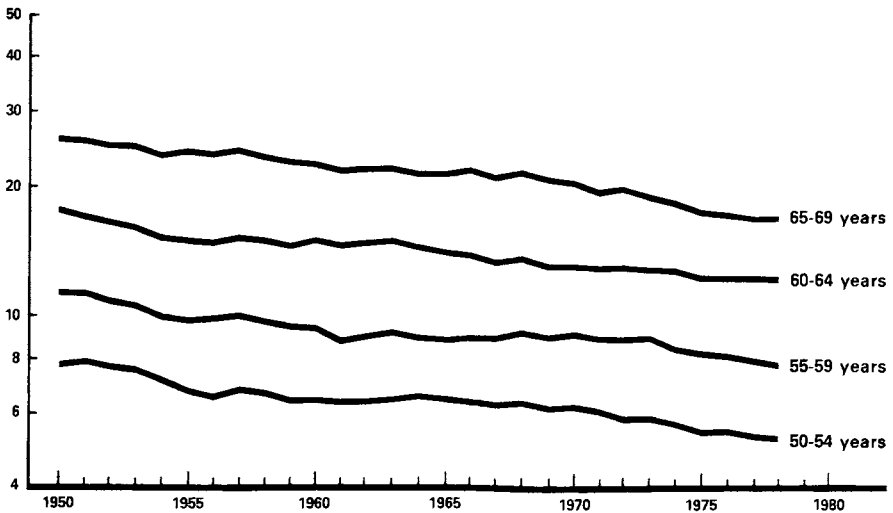


FIG. 1. Death rates for women have been declining for a long time (Deaths per 1,000 population: United States, 1950-78).

Source: Division of Vital Statistics, National Center for Health Statistics.

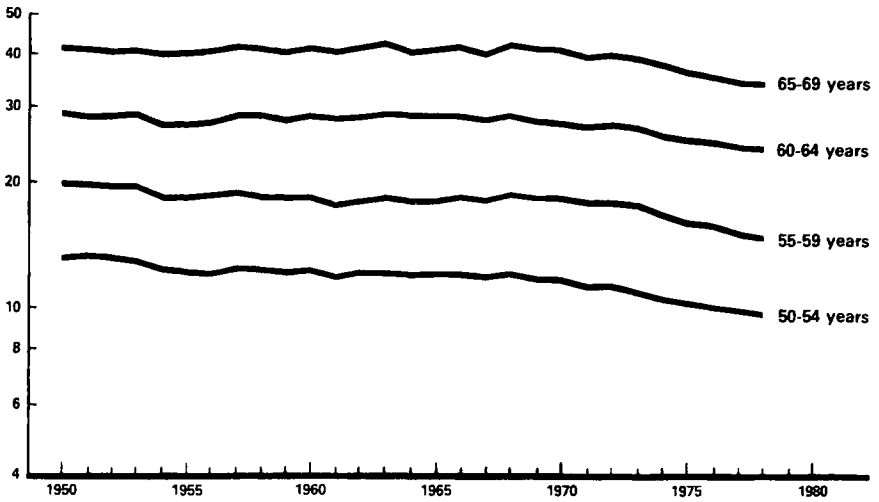


FIG. 2. Death rates for men have been declining since the late 1960s (Deaths per 1,000 population: United States, 1950-78).

Source: Division of Vital Statistics, National Center for Health Statistics.

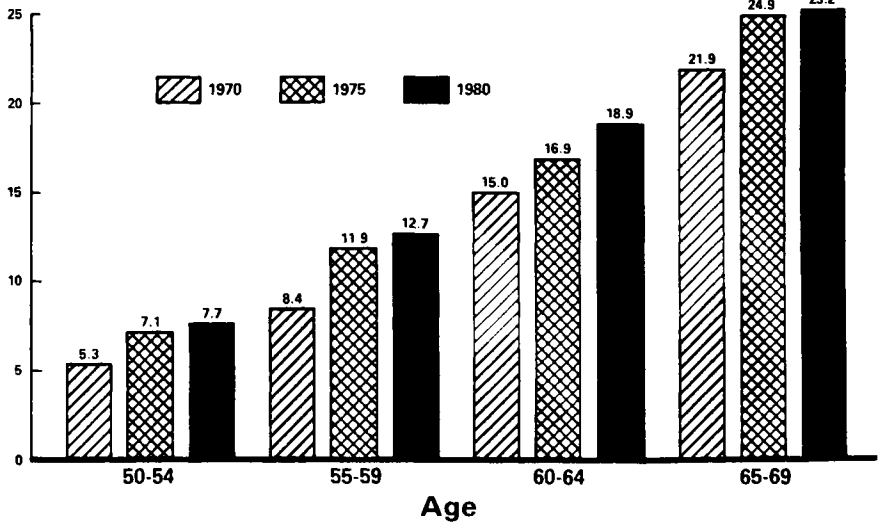


FIG. 3. Work disability rates for men have been increasing during the past decade (Percent unable to work: United States, 1970, 1975, and 1980).

Source: National Health Interview Survey, National Center for Health Statistics.

of available evidence regarding work-disability rates during earlier periods suggest even somewhat lower levels in the more distant past. For instance, for men aged 55 to 64, the rate of reported work disability in 1949 was about 10 percent (Woolsey 1950, 170, 178). [Approximately 12 percent of men aged 55 to 64 were reported as having been kept from working because of illness on the day of the interview. Since the data presented here for the recent period pertain to relatively long-term disability, the 1949 statistics must be adjusted. About three-fourths of those reported as disabled had been, by the day of the interview, disabled for 3 months or longer. This means that approximately 9 percent of all men in the age group had been disabled for 3 months or longer. The estimate of 10 percent in the text includes an additional correction for men with a disabling *chronic* condition that had its onset within 3 months prior to the interview.] The rate was apparently even lower in 1935 (Woolsey 1950, 183). Thus, rather than the predicted decline in the prevalence of work disability, we appear to have been experiencing an increase.

Some definitions are in order at this point. We are here defining a disabled person as one who is reported as not being able to work at all because of one or more chronic conditions. Examples of such chronic conditions would be coronary heart disease, arthritis, a musculoskeletal impairment due to an accidental injury or a stroke, and blindness. We are not restricting our definition to the totally and permanently disabled. We are counting cases here, however, only if they are relatively longstanding. Total recovery or rehabilitation for the disabled in the relevant age groups tends to be relatively rare, although partial recovery does occur rather frequently (Schechter 1979; Treitel 1979).

Some of the individuals who are here being counted as work disabled would probably, under the proper circumstances, be able to earn money at some type of employment; not all of them are totally disabled. However, these are individuals who are unable to perform the duties of a regular job of a type for which they appear suited.

Returning to the question at hand, how do we account for the increase in the prevalence of reported work disability that has been taking place concomitantly with the decline in mortality rates? While there are obviously a number of different factors at work (Wilson and Drury 1981), figure 4 can help us appreciate that a decline in mortality does not necessarily signify a decline in work disability. The schematic

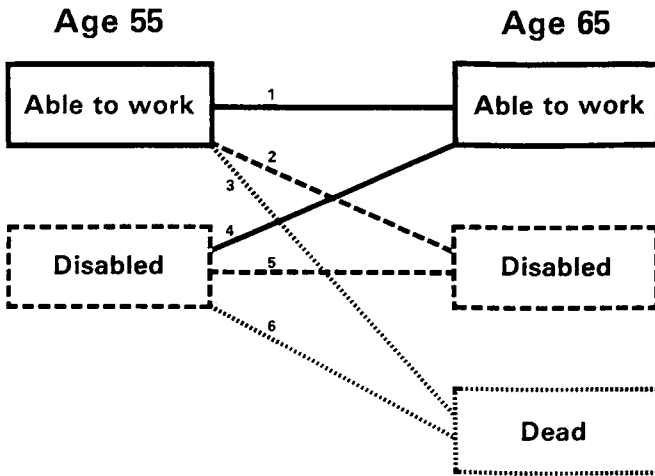


FIG. 4. Transition schematic.

represents what happens to a population cohort over a 10 year period, from age 55 to age 65. As one might expect, death rates among the disabled have generally been extremely high (Treitel 1979; Hennessey 1980; Croner and Haber 1974; Orcutt 1980). Thus, at earlier times, a substantial proportion of those disabled at age 55 would have died before reaching age 65. The pool of disabled at age 65 was limited in size because it was, in the main, composed only of individuals who had become disabled in the fairly recent past. This situation may very well have been changing since the late 1960s. The death rate from myocardial infarction (heart attacks) has been declining rapidly for both men and women in their fifties and sixties (Rosenberg and Klebba 1979). Myocardial infarctions are frequently the proximate cause of death, the coup de grâce, for individuals with other infirmities (Israel 1981). [On the basis of multiple cause-of-death tabulations, it is clear that most individuals who die of a myocardial infarction also have been suffering from other health impairments.] Reduced incidence and improved survival for myocardial infarction among the disabled would result in a major increase in the size of the pool of disabled at age 65, for instance. In terms of figure 4, it appears that what may have been happening is that the rate represented by stream 6 has been appreciably decreasing in size while the rate represented by stream 5 has been expanding, resulting in the marked accumulation

of disabled individuals at older ages (Fries and Crapo 1981). [Fries and Crapo predict that a period of "increase in the number of years of impaired health per person" will precede the anticipated "compression of infirmity."]

I should now like to turn to the current situation as represented by figure 5. The steady rise of the prevalence of work disability with age is striking if not surprising. The rates in this chart can, of course, be viewed two ways. Combining the three educational groups, we might observe that, for instance, 24 percent of all men aged 65 through 67 are too disabled to engage in any gainful employment. Alternately, we might observe that 76 percent of men of that age are still able to work to some extent. It should also be noted, however, that in addition to the 24 percent of the men aged 65 to 67 reported as not being able to work at all, another 13 percent are limited in the kind or amount of work they can perform; this leaves 63 percent being reported as fully able-bodied with respect to work.

The other striking fact conveyed by this figure is the wide differential in work-disability rates according to educational attainment. At ages

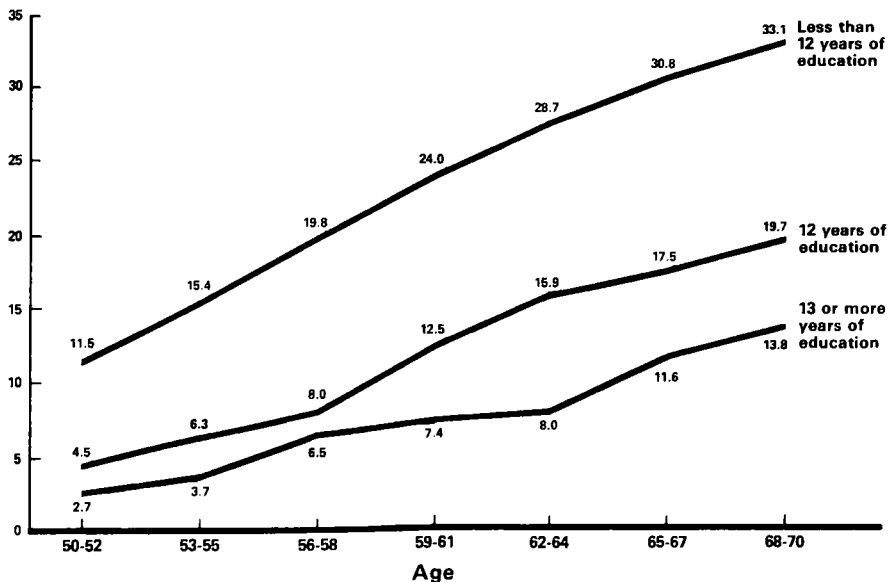


FIG. 5. Work disability rates for men increase sharply with age. The less educated experience the highest work disability rates. (Percent unable to work: United States, 1976-80).

Source: National Health Interview Survey, National Center for Health Statistics.



62 to 64, 29 percent of the men who had not been graduated from high school were unable to work because of a health problem; among men completing one or more years of college, only 8 percent had such a limitation due to health. Those with less education are likely to be in more physically demanding jobs than are those with more education. The less educated may also not have the skills necessary to be employed in a physically less demanding alternative job. There are a number of other explanations for these observed differences but they need not concern us here (Feldman 1982, 16). The central question facing this commission in this regard is whether the prevalence of work disability of people in their sixties will decline in the future as successively more highly educated generations pass through that age range. I know of no way to answer this question with any certainty. It would seem, however, that trends in the occupational and industrial structure of the economy would be as important as trends in educational attainment. It appears likely that there will remain in the future a substantial number of jobs that are physically or emotionally demanding. While service industries are projected to be the fastest growing employment sector, it should be kept in mind that strenuous work such as automobile repair and hospital nursing are expected to be rapidly growing components of the service sector. Similarly, rapid growth in employment opportunities is expected in eating and drinking establishments, jobs that also require considerable stamina (Personick 1981).

Differences in work-disability rates between men and women can be examined in figure 6. At each age, women are reported as having a higher prevalence of work disability than are men. As was pointed out in connection with figures 1 and 2, the death rates for men in this age range are twice as high as those for women. The discrepancy between the mortality and disability differentials confirms our contention that mortality rates are very poor indicators of work-disability prevalence rates across population groups or over time.

In figure 7, we observe the rapid increase with age in the prevalence of certain functional impairments. For instance, about 22 percent of all women between 35 and 44 years of age experience some trouble standing for long periods; this prevalence nearly doubles by ages 55 to 64. Only four typical functional capacities are shown in the chart but the age patterning in prevalence is nearly identical for a wide variety of physical activities that are commonly required for jobs.

We can see from figure 8 that the age pattern for men is quite similar to that for women although the reported prevalence rate at

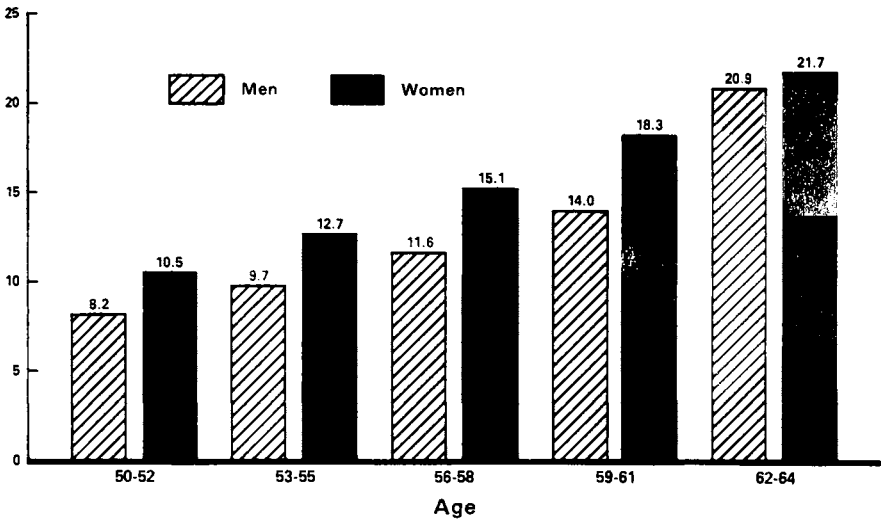


FIG. 6. Work disability rates are higher for women than for men (Percent unable to work: United States, 1976).

Source: Survey of Income and Education, Bureau of the Census.

each age for each particular impairment is generally somewhat lower for men. It should be understood that these physical limitation counts are based on a low threshold of limitation. We note, for instance, that 28 percent of men aged 55 to 64 report themselves as having some trouble lifting or carrying 25 pounds. Only a small minority of the men with the limitation are completely unable ever to lift or carry that much weight. Most of these men can handle 25 pounds during certain periods of time, for instance, while their bursitis or back conditions are in remission. There are other periods, however, when these same men find it quite painful or difficult to lift or carry 25 pounds. Some of the men can perform such a task occasionally with practically no difficulty, but would have trouble doing it repeatedly and frequently. For some individuals, the pain and discomfort of such exertion is noticeable but relatively mild; for others, it may be more severe but still bearable. Although the limitation categories presented here are extremely heterogeneous with regard to severity, we do need to recognize how rapidly the prevalence of functional limitations increases with age.

It is clear that some individuals could continue working despite a physical limitation if they could find a job that would permit them

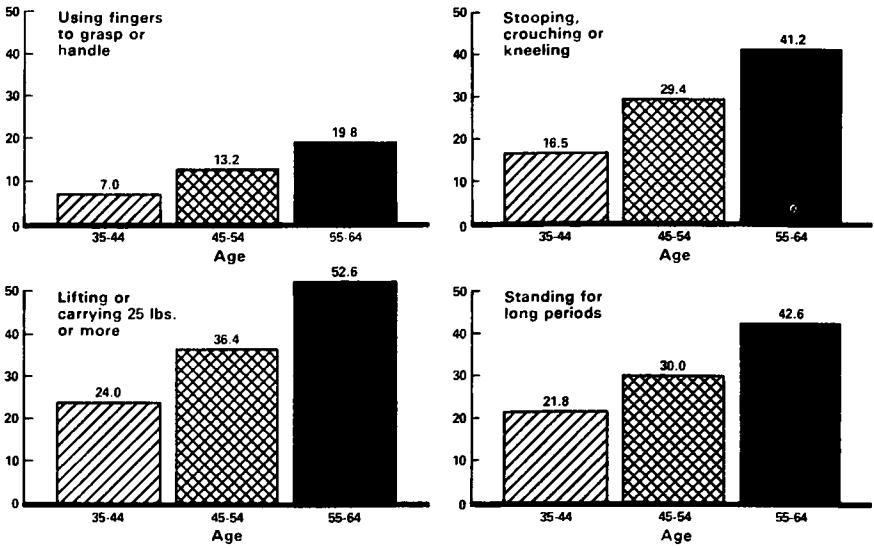


FIG. 7. Routine acts may become difficult as one grows older (Percent of women having trouble when performing specified activities: United States, 1978).

Source: 1978 Survey of Disability and Work, Social Security Administration.

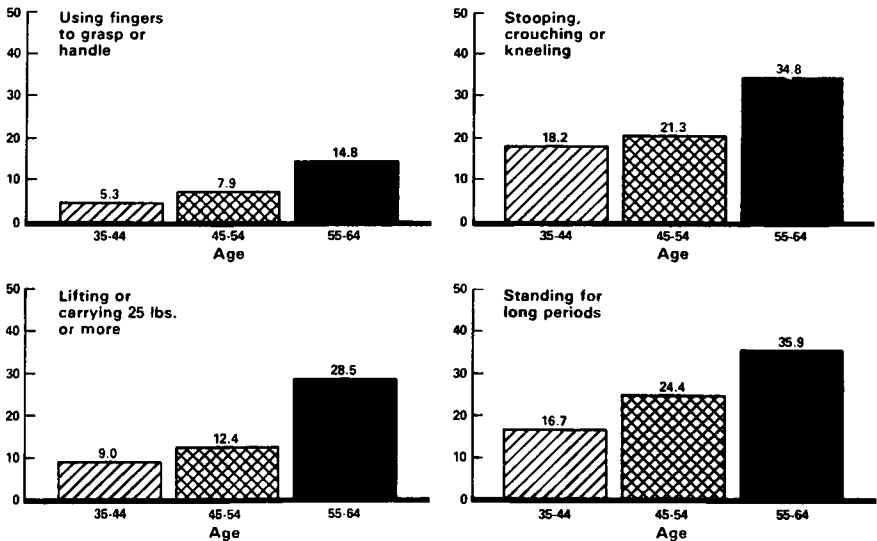


FIG. 8. Routine acts may become difficult as one grows older (Percent of men having trouble when performing specified activities: United States, 1978).

Source: 1978 Survey of Disability and Work, Social Security Administration.

to work intermittently, i.e., during periods of remission of their symptoms. Others could work part-time but not full-time. Still others could work at a physically less demanding job but not at their regular jobs. Such employment changes would, of course, generally result in an appreciable diminution of earnings. Before the advent of current social insurance and income maintenance programs, such employment shifts occurred with some frequency. Older workers left more physically demanding occupations and became night watchmen, guards, doormen, elevator operators, bootblacks, gardeners in private households, and real estate agents (Bogue 1959). In addition, the substantial proportion of older workers who were self-employed as farmers, shopkeepers, and craftsmen were able to adapt to their physical limitations by working intermittently or part-time or by selectively performing those of their former array of tasks that their impaired health permitted. Because of such changes in work activity, earnings declined appreciably for a segment of the aging population as they passed through what is now viewed as the retirement period. Present-day workers suffering physical impairments might not be as successful in obtaining suitable alternative employment as were their counterparts a half-century ago. There are probably fewer "old folks" jobs in the economy now and there may be greater institutional barriers to sporadic, occasional, or part-time employment (Durand 1948). [In a section of his monograph entitled "Contracting Field for Employment of Older Workers," Durand indicates that the institutional barriers to employment were already a serious problem in the immediate post-World War II era.] The state of health and the requirements of the job for a majority of workers reaching their mid-sixties would permit them to continue in their regular line of work with only minimal, if any, job redesign. It is the sizable minority with a rather wide discrepancy between the demands of their regular jobs and their remaining functional capacity for whom there is a problem.

The concern of this commission is with future trends in work disability, a question I have addressed only tangentially. The problem is illustrated by the discussion in a recent Social Security Administration Actuarial Note (Bayo and Faber 1981) that projects equivalent retirement ages to the year 2050. Permit me to quote briefly from the note:

The measures of equivalence considered in this note take into account mortality, but do not take into account morbidity. That

is, they adjust for the expected length of life spent in retirement, but they ignore the question of whether that life is spent in a more or less healthy condition. One reason for ignoring that question in this note is that morbidity is much more difficult to quantify than is mortality. . . . Another reason for ignoring morbidity is that we believe that mortality and morbidity are correlated. That is, when mortality improves, morbidity also tends to improve.

I suggested earlier that a decline in mortality rates can be connected with an increase in morbidity rates. As can be seen in the top panel of figure 9, the prevalence rate of disabling heart disease has been increasing throughout the recent period of rapidly declining heart disease mortality rates. People with disabling heart disease may be surviving longer (Elveback, Connolly, and Kurland 1981). [The observed improvement in long-term survival for patients with angina pectoris is suggestive.] This could result in an increase in the size of the disabled population.

A second point of confusion involves the equating of life-threatening conditions with disabling conditions. While there is obviously some overlap between the two sets of conditions, a great deal of disability

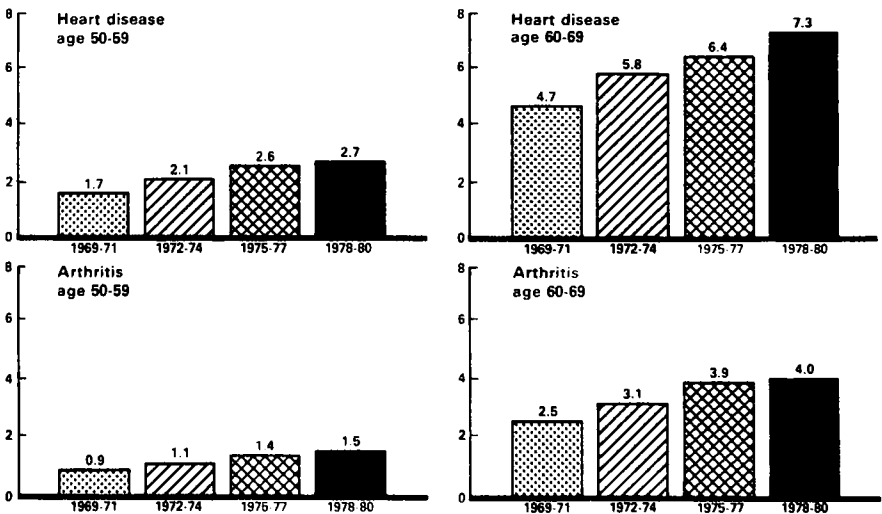


FIG. 9. Disability rates due to heart disease and arthritis increased over the past decade (Percent of men unable to work because of specified conditions: United States, 1969-80).

Source: National Health Interview Survey, National Center for Health Statistics.

is caused by conditions that are not lethal. Musculoskeletal conditions are the cause of a large proportion of work disability. Arthritis, for instance, does not appear to shorten one's life to any great extent. Figure 9 shows the upward trend in the prevalence of disabling arthritis during the past decade or so. While it is not clear why this prevalence has been increasing, there is no particular reason why reductions in mortality rates should result in a reduction in the prevalence of arthritis or of any of a number of other disabling conditions that are generally not lethal.

It has been suggested that the future trend will be markedly different from that depicted here. The concept of the "compression of infirmity" has been receiving wide currency (Fries 1980; Fries and Crapo 1981, 85-93). It is held by some that the age at which chronic diseases manifest themselves is largely under our control as individuals and as a society. The age of onset of disability could be delayed by attention to such personal health habits as exercise, cigarette smoking, alcohol abuse, obesity, and dietary intake as well as the management of high blood pressure and control over environmental pollution. Under this scenario, a widespread reform in personal health habits is taking place and will eventually result in the postponement of the age of onset of disability. The prevalence of work disability would certainly then be lowered in the age span of concern to us here. In terms of figure 4, the stock of disabled at age 55 would be much smaller and the flow of stream 2 would be much slower, thereby reducing the proportion of disabled at age 65 and, of course, at all intervening ages.

What the future holds in this regard is very much a matter of conjecture. The long-term impact of further mortality reductions on the health of the surviving population is difficult to gauge. What has been happening with regard to diabetes is instructive. Diabetes is a condition of which we do not as yet know how to retard the onset but for which the duration of survival subsequent to onset has improved tremendously. Before the use of insulin in the management of diabetes, very few patients lived more than 3 or 4 years after diagnosis. Diabetic comas caused very early deaths. Subsequent to the use of insulin and other advances in the management of diabetes, patients began to survive for far longer periods of time. Medicine became aware of a wide variety of late complications of the disease that arise only after an individual has lived with the disease for many years. When almost all patients died soon after onset, there was no way of knowing what

the late complications would be. The greatly improved survival of diabetic patients has resulted in an extremely large increase in the prevalence of the condition and such disabling complications as vision loss and cardiovascular problems (Marble 1976). The lesson to be learned from this is that we forecast the future course of disability prevalence at our own peril (Dubos 1959).

The "compression of infirmity" is based on the anticipation of an imminent widespread reform of personal health habits. Certainly a lower proportion of the population smokes cigarettes now than was the case a decade or two ago. Some other health practices have also shown improvement, but there is no assurance that these trends will continue. Furthermore, it is not clear that the recent trends for alcohol and drug abuse have been particularly favorable. It is difficult to place a great deal of confidence in a forecast of future disability rates that is contingent on a widespread and permanent change in behavior.

I have attempted in these remarks to inject a note of caution regarding the forecasts of a rapid decline, perhaps by the turn of the century, in the prevalence of work disability. On the other hand, we cannot extrapolate the recent increases in work-disability prevalence very far into the future; advances in the prevention, treatment, or rehabilitation of musculoskeletal conditions could be countervailing factors. In addition, jobs could be redesigned to accommodate the handicapped. Given the many intangibles, the commission's recommendations concerning the retirement age will undoubtedly have to be formulated in the face of considerable uncertainty regarding the future course of disability prevalence rates. "Increases in longevity in the past have generally been somewhat larger than the best-informed estimators had predicted" (Myers 1982). Disability prevalence may well be more difficult to predict than is longevity. Our relatively poor record in predicting the future course of mortality rates does not bode well for our prediction of disability prevalence trends.

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