

The sick and the well: adult health in Britain during the health transition *



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Abstract

Using adult life-long histories of health experience among a group of men and women born in Britain between 1725 and 1874, this paper examines individual health during the mortality decline. The risk of initiating a new sickness declined sharply between the cohorts born in the eighteenth century and those born during 1825-74, but the average duration of each episode increased. As successive cohorts added to their life expectancy, survival time rose more sharply than did well time.

Continuity rather than change is apparent in another aspect of their health experience, the capacity of prior health to predict future sickness and wellness. Among the men and the women and in the eighteenth-century cohorts as well as the cohorts of 1825-74, the degree of wellness or sickness evident early in adult life strongly predicted future sick time for 15 to 20 years, and strongly predicted future sickness events for a longer period still. Moreover, women surpassed men in their propensity to hold on to the health status exhibited in early adulthood.

Two fundamental changes are known to have occurred in health experience in developed countries since the eighteenth century. First, life expectancy at birth advanced from about 30 to some 75 years. Second, the diseases of leading importance as causes of death have undergone shifts through four regimes: infectious, respiratory, organ, and degenerative. Because of the importance of these transformations, depictions of the health transition are typically led by arguments about change. Most of the research undertaken to this point has also focused on aggregate experience, and specifically on death as a gauge of health experience.

This essay directs attention toward individual rather than aggregate experience, examining the adult life-long health experience of men and women born across the period from 1725 to 1874. It focuses on sickness and wellness during the life course, rather than on the issue of survival. And it poses new questions about how long prior health experience — wellness or sickness — influences subsequent health.

Three specific questions will be addressed. First, how did sickness events and sick time accumulate among men and women between cohorts born in the eighteenth century and

*Funding for this research was provided by the National Institutes of Health, grant number R01AG12033-01.

those born in the middle decades of the nineteenth century? Second, how did life and wellness expectations change between those two groups of cohorts, again considering men and women separately?

Third, does prior sickness or wellness influence the course of later health in adulthood? If it does, how long is the effect felt? Two broad hypotheses can be considered. According to one, health experience at the individual level is more or less a random walk, an effect of exposure to hazards that has little to do with prior health experience. According to another hypothesis, health experience early in adulthood both reflects earlier life wellness and sickness, and predicts health in later life. The random walk hypothesis seems particularly likely to obtain in any population whose disease profile is dominated by infectious ailments. The predictive hypothesis, in contrast, seems likelier to obtain in a population beset by respiratory diseases, which more often carry with them deferred effects.

Sources

Adult life-long records of health experience have been extracted from the ledgers of four British friendly societies, self-help organizations whose members paid in premiums in order to draw out sickness and burial benefits. Sickness benefits compensated a member for part of the wages lost during bouts of sickness that lasted at least three days; burial benefits compensated the member's survivors for the costs of a respectable interment. These data reflect health experience across the period 1775-1930. Here attention focuses on two of the four societies, one male and the other female, and both having histories nearly coincidental in time within the period 1775-1914.¹ The Morcott Friendly Society, situated in an agricultural village in Rutland with an 1841 population of 516, was organized in 1774 and began paying out benefits in 1775. It wound up in 1902. The Ashborne Female Friendly Society, located in a manufacturing town in Derbyshire with an 1841 population of 2,158, was organized in 1806 and started paying benefits in 1807; it concluded activities in 1914.² The women who belonged made corsets, worked with lace, and worked as domestic servants.

Both societies engaged medical practitioners to examine candidates for membership and to certify the validity of sickness claims. Both also appointed members to serve as stewards, whose task it was to visit the sick to show an interest in the member's recovery and to verify the validity of the claim. A doctor's authorization was required to initiate and to terminate a claim; the stewards visited weekly to ensure that members receiving benefits had not resumed wellness activities, such as returning to work, going out in the evening, or visiting a tavern. Friendly society rules and practices are discussed in Riley (1987, 1996).

These two friendly societies, along with thousands of others, defined sickness in the same way, as a health condition that prevented the individual from working. That is only one possible definition of sickness. As a threshold distinguishing wellness from sickness, it is certain to differ, at one extreme, from the circumstances that seem to warrant hospitalization or, at the other extreme, from the circumstances that seem to warrant complaining about the state of one's health. Moreover, the friendly society definition of sickness does not equate with the definition a medical practitioner would have applied. In one case the issue was ability to work. In the other the issue was the need for, and perhaps also the capacity to afford, therapy. All of these definitions, and others not mentioned, have value for the attempt to

¹The two societies omitted, one located in the Northamptonshire village of Abthorpe, and the other in the Cardiganshire village of Llangeitho, provide evidence chiefly about cohorts born in the nineteenth century, and thus do not allow the comparisons across time that will be drawn here.

²Leicestershire Record Office, Records of the Morcott Friendly Society, DE 1702/4-11, and Morcott parish registers, DE 2876/2,4, and 6, and DE 3010/1; and Derbyshire Record Office, Matlock, Records of the Ashborne Female Friendly Society, D662 A/PF51-PF103, and Ashbourne parish records for St. Oswald, D662 A/PI 2/2-4.

understand human health experience. What is most important about the friendly society definition is that the same threshold was meant to obtain in these two societies across the entire period of their existence. That does not necessarily mean that a sickness in 1900 meant the same thing as a sickness in 1810. But it does mean that the members gave no evidence, in the rules they set out or in the minutes of their meetings, that they intended to change the meaning of what they called sickness. They used that term to describe illnesses and injuries, and they were confident enough in their own, and in their doctors' and stewards', ability to distinguish sickness from wellness that they did not require diagnoses. For them the important issue was to certify when a member became sick and when he or she recovered.

Table 1 provides some key quantities about the membership and the number of years' exposure to sickness and death in the two societies.³ Many men and an even larger proportion of women joined these two friendly societies only for brief periods. In Morcott the typical new member joined at age 23; most men who left did so within five years of entry. In Ashborne (now called Ashbourne) the typical new member joined at age 22; most women joined when they were single and, upon marriage, decided whether or not to remain members. Many elected to leave at that point, even though the Ashborne society provided childbirth benefits for members who paid an additional premium. Although small numbers of men and women are represented in these two societies, they accumulated impressive numbers of years at risk to sickness, sick time, and sickness events.

Table 1
Characteristics of two friendly societies

	Morcott	Ashborne
Number of members belonging >5 yrs	450	181
Benefit dates	1775-1902	1806-1914
Yrs at risk for members belonging >5 yrs	10,366.5	3,868.05
Net yrs at risk for members belonging >5 yrs	9,675.38	3,028.78
Sickness days	236,966	301,373
Sickness events	2,808	2,023
Deaths	222	93

Sources: See note 2.

Sickness events, sick time, and survival time

The Morcott and Ashborne societies remained in existence long enough to count among their members sizable numbers of men and women born in the second half of the eighteenth and the first three-fourths of the nineteenth century. In this section and the next, part of this experience has been extracted in order to examine changes over time in three gauges of health experience, each of which provides an independent measure: **sick time** measures the

³Risk time and health events are reported only for members who belonged at least five years, i.e., for members with at least four years' exposure. The experience of shorter-term members is omitted because some selection effects are apparent in comparing members who belonged less than five years with members of the same ages who had belonged for longer periods. The Ashborne ledgers record sickness time but not the number of sickness events in the period 26 March 1845 - 25 March 1847. Members sick during that period have been assigned one episode for purposes of assessing relationships between past and future sickness, but that period has been omitted from calculations of sickness rates. Judging from other years, the assignment of a single episode will slightly understate the actual number of sickness events in that some members sick during that two-year period may have experienced more than one episode.

proportion of time during which the average member earned benefits in each age group. **Net incidence** measures the average number of new sickness events⁴ during the period of wellness in each age group. In previous work, incidence has been measured as the number of new episodes divided by the time at risk, including sick and well time. As a gauge, net incidence more faithfully captures the rising risk of a new episode associated with age by deleting sick time from the denominator. **Survival time** measures the average time at risk accumulated by members at each age.

Comparisons will be made among four cohorts: (1) Morcott men born in the eighteenth century, between 1725 and 1799, who died between 1780 and 1883; (2) Morcott men born in the years 1825-1874, who died between 1862 and a date after the society wound up its business in 1902; (3) Ashborne women born in the eighteenth century, between 1770 and 1799, who died between 1812 and 1886; and (4) Ashborne women born in the years 1825-1874, who died between 1870 and a date after 1914, when the society closed. Omitting members born in the period 1800-1824 will strengthen any contrasts associated with the passage of time. A few members born after 1874 have also been left out, but they supply only a few years of exposure, and those only at young adult ages.

Table 2 furnishes a Survivors' Health Table, extracting three quantities for each age group from 20-24 to 75+ and for each of the two male and two female cohorts. In the first column of each panel appears the net incidence of new sickness events. The second column reports the cumulative number of days lost to sickness in proportion to the time at risk. The third column gives the part of each five-year period that members of each society survived. Sickness events, sickness days, and survival time were of course accumulated only by the living.

Ashborne women consistently initiated more episodes of sickness than their male counterparts in Morcott of the same ages, excluding childbirths.⁵ Whereas the young men of Morcott on average initiated about one new episode in each five-year age group from 20-24 to 45-49, the Ashborne eighteenth-century cohort initiated four times as many new sicknesses, and the 1825-74 cohorts nearly twice as many at the same ages. At higher ages, too, the women experienced more frequent sicknesses than did the men. In all age groups the women accumulated more sick time, which means that their sicknesses also lasted longer. Table 3 contrasts the average length of new sicknesses according to the age at which the episode began, rather than the age at which the sickness was experienced. As expected, sickness length increased with age in all four cohorts of Morcott men and Ashborne women. It also increased over time, comparing eighteenth-century cohorts to the men and women born between 1825 and 1874. Those differences can be summed up by standardizing these results. For Morcott men the average duration rose by 12.9 per cent, and for Ashborne women by 33.1 per cent, a figure pushed up by a few unusually long sicknesses. The standardization is on ages 20-74.

⁴A new event is a sickness that began at least 14 days after the conclusion of a preceding episode. Since there are no conventions for counting new episodes, two options were considered, a minimum option with a 14-day gap, and a maximum option with a 90-day gap. In comparing results it was found that only a few people contracted sicknesses within the period from 14 to 90 days since their last episode, so that the 14-day gap could be adopted as a convention without producing results that differed significantly from using a 90-day gap as a convention.

⁵Some members of the Ashborne society paid additional premiums for childbirth benefits, which are not included in the data examined here.

Table 2
Survivors' health table

	---- Morcott 1725-1799 ----			---- Ashborne 1770-1799 ----		
	Number of sickness events in 5 yrs	Sick time in fractions of the 5 yr period	Survival time within each 5 yrs	Number of sickness events in 5 yrs	Sick time in fractions of the 5 yr period	Survival time within each 5 yrs
20-24	0.77	0.0025	5.0	4.53	0.0971	4.49
25-29	1.33	0.0172	4.92	3.97	0.0800	4.70
30-34	0.96	0.0146	4.90	4.70	0.1181	4.86
35-39	1.31	0.0201	4.83	4.62	0.1536	4.79
40-44	0.97	0.0176	4.78	4.34	0.1546	4.90
45-49	1.16	0.0158	4.86	4.61	0.1611	4.73
50-54	1.50	0.0312	4.82	5.07	0.2137	4.94
55-59	1.43	0.0357	4.74	4.48	0.1700	4.60
60-64	1.90	0.0745	4.61	4.19	0.1684	4.84
65-69	2.22	0.1514	4.58	3.96	0.2426	4.65
70-74	2.77	0.2459	3.85	11.39	0.9151	4.60
75+ a	3.74	0.5391	2.50	0	0.9839	2.50
	---- Morcott 1825-1874 ----			---- Ashborne 1825-1874 ----		
20-24	1.28	0.0142	5.00	0.38	0.0037	5.00
25-29	1.17	0.0230	5.00	2.15	0.0513	4.85
30-34	0.90	0.0247	4.92	1.74	0.0370	4.83
35-39	1.04	0.0186	4.92	1.60	0.0843	5.00
40-44	1.21	0.0173	4.88	1.37	0.0997	4.93
45-49	1.45	0.0329	4.86	1.45	0.1020	4.81
50-54	1.29	0.0394	4.96	1.27	0.0895	4.78
55-59	1.48	0.0740	4.78	1.65	0.0979	4.86
60-64	1.62	0.0657	4.71	1.18	0.1166	5.00
65-69	2.74	0.1489	4.54	1.85	0.2971	4.74
70-74	1.79	0.2524	5.00	4.75	0.8709	4.67
75+ a	0	0.2601	2.50	0	1.0	2.50

^a at the 75+ rate for 75-79

From one cohort to the next the risk of falling sick declined. Both men and women, especially the women, initiated fewer new sicknesses in the 1825-74 cohorts than had the eighteenth-century cohorts. Among Morcott men the average number of sickness days increased slightly from one cohort to the next, while for women it decreased in most age groups. And mortality declined at a similar rate for men and women. These trends can be discerned in Table 2, but they are more readily apparent in the summary measures calculated for standard populations in Table 4.⁶ For men and women the average duration of each

⁶Separate male and female standard populations have been used for Table 4, each composed of the average number of members in the friendly societies for each age group between the two cohorts.

sickness episode increased. That is, the number of sickness incidents declined more sharply for Ashborne females than did the average number of sickness days for each year at risk.

Table 3
Average length in days of new sickness episodes by age of episode initiation

Age group	Morcott <1800	Morcott 1825-74	Ashborne <1800	Ashborne 1825-74
20-24	6.00	16.52	42.22	14.00
25-29	23.36	55.40	41.18	49.82
30-34	27.56	29.78	70.87	40.83
35-39	33.71	38.62	58.87	373.64
40-44	27.32	20.40	125.36	74.56
45-49	24.81	77.88	62.15	68.73
50-54	44.82	32.13	69.55	67.76
55-59	71.36	163.05	76.81	49.77
60-64	134.20	38.0	169.81	97.53
65-69	148.58	101.91	576.59	1590.50
70-74	140.96	161.45	2234.75	2170.00
75+	508.77	0	0	0

Table 4
Average sick time, sickness incidence, and mortality in Morcott and Ashborne societies for cohorts born before 1800 and 1825-74 (standardized by age)

	Born before 1800	Born 1825-74	Per cent change
Morcott males			
Days sick per year	20.2	20.3	+0.4
Net incidents per year	0.29	0.26	-8.4
Deaths per year	24.0 per 1000	15 per 1000	-37.4
Ashborne females			
Days sick per year	89.5	69.2	-22.8
Net incidents per year	0.90	0.32	-64.5
Deaths per year	26.6 per 1000	16.2 per 1000	-39.0

Life and wellness expectations

Table 5 displays life and wellness expectations at three ages in the four cohorts, and shows the percentage change in sick time, well time, and incidence. Men and women alike gained survival time in the passage from the eighteenth century into the nineteenth. They also gained well time. But they gained less well time than they did survival time, the difference showing up in Table 5 as the percentage change in sickness time.⁷ At each age there was a gap between life and wellness expectations in the 1825-74 cohorts as wide as, but in most cases wider than, the gap in the eighteenth-century cohorts. The gains in survival time that these adults enjoyed came in the form of proportionally greater additions to sick than to well time. Indeed, for the women of Ashborne, these wellness expectations show a significant gain only for early age groups, 20-24 to 40-44. For higher age groups well and sick time converged.

⁷This result appears also in comparing survival and wellness time among male members of Scottish friendly societies (Riley 1991). Compare with modern experience in Bebbington (1991).

That convergence is influenced by a provision in the Ashborne rules, which allowed members to draw a pension, in lieu of sick benefits, from age 70. Not everyone took

Table 5
Expected years of life, wellness, and sickness.

Morcott society at ages 25-29 and 50-54					
Age and cohort	Expected years of:			Percentage change in:	
	Life	Wellness	Sickness	Sick time	Well time
From age 25:					
1725-99	36.5	34.6	1.91		
1825-74	42.3	39.6	2.72	42.2	14.4
From age 35					
1725-99	28.9	27.1	1.89		
1825-74	33.4	30.9	2.56	35.2	14.1
From age 50:					
1725-99	19.3	17.3	2.06	25.9	14.3
1825-74	22.3	19.7	2.59		
Ashborne society at ages 25-29 and 50-54					
Age and cohort	Expected years of:			Percentage change in:	
	Life	Wellness	Sickness	Sick time	Well time
From age 25:					
1770-99	34.1	26.6	7.51		
1825-74	40.3	32.8	7.47	-0.6	23.4
From age 35					
1770-99	30.2	22.3	7.98		
1825-74	35.1	27.1	8.02	0.6	21.7
From age 50:					
1770-99	21.3	13.9	7.46		
1825-74	22.9	15.5	7.39	-1.0	11.8

the pension at age 70, but all had taken it by age 75.⁸ However, this strong convergence also shows up when health experience and survival time after age 70 are disregarded. For men the passage of time brought gains in survival and well time. For women those gains were much smaller.

In both communities sickness incidence decreased from one cohort to the next, but among Ashborne women the decline was dramatic. Friendly society members born in Ashborne between 1825 and 1875 were at every age much less likely to fall sick than their counterparts from the earlier cohort. For Ashborne women aggregate sick time declined slightly from one

⁸The higher survival rates of the 1825-74 cohort meant that a larger proportion of members lived to enjoy the pension benefit. Thus in the 1825-74 cohort the sickness rate at ages 70-74 and 75+ was no higher than it was in the eighteenth-century cohort, but the total number of years lived after age 70 was nearly twice as high.

cohort to the next in each age group, while well time increased. But this precipitous drop in sickness incidence meant that the average duration of individual episodes rose. For example, at ages 25-29 sickness duration dropped from 29.2 to 18.7 days a year but, taking incidence into account, the average episode increased in length from 36.7 days to 43.6 days.

Comparing male and female experience, Morcott men lived longer than Ashborne women during their twenties. That female disadvantage shows up in Table 5 for age 25. At ages 30 and above, however, women had the advantage. But the women's wellness expectations fell even more decisively below the men's expectations in both cohorts. Even though the calculations behind Table 5 exclude time lost from work because of childbirth, Ashborne women show decidedly higher quantities of sickness time during adulthood. That difference was greater during childbearing years. But it was still marked at higher ages.

Other evidence from the nineteenth century shows higher life expectancy and higher sick time for women than men.⁹ The contrast evident in Tables 5 and 2 may be owing in part to differences in the characteristics of the two communities under observation as well as to differences associated with sex. Ashborne with the adjacent town of Compton must be counted an urban area, and therefore a region facing higher risks of death and disease than rural Morcott. Furthermore, the Ashborne Female Friendly Society was supported in part by honorary members, benefactors who contributed annually to the society's expenses without entering any claims. On average the honorary members, who may have been the employers of benefit members, contributed nearly half of the society's revenues, leaving out income from investments. The effect of this practice was to allow the Ashborne society's benefit members to draw more generous benefits than warranted by their own contributions, while the Morcott men drew benefits only from their own contributions. In the middle of the nineteenth century Ashborne benefit members paid a weekly average of 1.09d for weekly benefits of 4s, while the Morcott men paid a weekly average of 2.8d for weekly benefits of 7s. Thus the Ashborne society offered its members a higher benefit-premium ratio, at 44:1, than did the Morcott society, at 30.3:1, and that higher ratio may have induced more or longer claims. In sum, Ashborne's urban status probably explains the higher mortality of its members, compared to Morcott men, while the more generous benefits that the Ashborne society paid, in proportion to premiums, probably added to the male-female differences noticed in sickness. But the basic differences apparent in that comparison, a higher female life expectancy combined with a lower wellness expectation, are consistent with other evidence. In twentieth-century populations as well, women report more episodes of sickness and their sicknesses last longer than do those of males. But the women's sicknesses are less likely to result in death (Waldron 1982; Verbrugge 1989).

The comparisons of well and survival time and of health experience embodied in Tables 2, 4, and 5 underscore the value of looking for signs of change in mortality and health experience across the health transition. They suggest that the most dramatic feature of the health transition was movement across regimes. But the issue of whether change is a leading element of the story can also be approached in new ways.

Does earlier health experience predict later health?

Almost uniquely among the records that can be assembled about health experience in historical and contemporary populations, friendly society ledgers make it possible to follow wellness and sickness across the adult life course of an individual. They show how often people fell sick, according to friendly society rules for distinguishing sickness from wellness.

⁹The largest volume of aggregate data about sickness among women who belonged to friendly societies appears in Sutton (1896). See also Riley (1989).

And they show how long sickness episodes lasted. Thus these records make it possible to formulate questions about the predictive power of sickness and wellness earlier in life.

In order to test the hypothesis that change dominated the health transition, the Morcott men and Ashborne women have once again been divided into cohorts born in the eighteenth century and cohorts born in the years 1825-74. In each group of cohorts members have been allocated to successive reference age groups: 25-34, 35-44, 45-54, and sometimes 55-64. Within each of those groups members have been sorted into three categories, those who were **well**; those in the bottom half of sickness rates, the **low** category; and those in the top half of sickness rates, the **high** category. The members of each category have been followed forward in time through successive quinquennial age groups up to old age in an effort to discover how long people in that category maintained the position they occupied at the reference age.

Figure 1 provides an illustrative model for the series of findings presented in Figures 2-5. This model relates the predictive power of sick time at ages 25-34 for future sick time among the Morcott men born in the period 1725-99. Two issues are of concern: do the members of each group distinguish themselves from other groups beyond the reference age? And if they do so, then for how long? In Figure 3 Morcott men who were always well at ages 25-34 continued to experience less sick time than members of the low and high sickness groups through three successive age groups, 35-39 to 45-49, before crossing the curves described by sick time in those groups. And men who fell into the low sickness group at ages 25-34 continued to experience less sickness than the high group through ages 40-44. The most important thing to look for in Figures 2-5 is the age at which the sickness curve of the well group crosses the curves of the low and high sickness groups.

Figures 2-5 present the full series of results for all four cohorts. They show the predictive power of past health experience in separate A and B series. In the A series, sick time in each age group predicts sick time in successive age groups from each reference age. In the B series, sick time predicts the net incidence of sickness at future ages.

Figures in the 2a series show how long adherence to the well, low, or high category obtained for Morcott men born in the eighteenth century. They show that wellness at ages 25-34 forecast lower sick time for the next three quinquennial age groups, to 45-49. Wellness at ages 35-44 failed to predict a future health experience much different from the low sick time group, although it did predict future sick time lower than that in the high group for some 20 years. At ages 45-54 and 55-64 wellness once again predicted three successive quinquennia of lower sick time. Overall, wellness in the reference ages reliably predicted significantly fewer sickness days for 15 to 20 years, before the three groups converged. Likewise membership in the low and high categories predicted future sick time for about the same period of 15 to 20 years.

One of the strong reasons for convergence after 15 to 20 years lay with the deaths of members within a category, especially at the upper end of the high group. Many of the men who were sick much of the time died, which removed them from the category and pushed sickness rates down, especially at lower reference ages.

Results in the B series for Morcott men born in the eighteenth century are more distinctive still. Men who were well during each reference period enjoyed a consistently and significantly lower rate of new sickness events at all subsequent ages. Men who fell into either category of the sick, low or high, tended to remain in that category for 15 to 20 years, when the low and high categories converged.

The A and B series in Figure 3 take up the same issues for Ashborne women born in the eighteenth century for three reference ages, 25-34, 35-44, and 45-54. Whereas among the men the well group included larger numbers of men than either the low or high categories, among Ashborne women it made up the smallest number. In the 25-34 reference age, the well group disappeared after ages 45-49, as its members all left or died. That notwithstanding, health

experience in the reference age shows an even stronger power to predict future health among Ashborne women than among Morcott men. The well preserved a distinctively superior position in future sick time up to the pension age of 70; they also retained a lower risk of initiating new sickness events.

Figures 4 and 5 show similar characteristics in the Morcott and Ashborne cohorts born during 1825-74. In each case sick time in the reference age predicted sick time at later ages for several quinquennia, longer for women than for men. And in each case wellness in the reference age forecast a future of markedly fewer sickness events than that faced by either the low or high group of the sick.

Figure 1 Morcott, 1725-99 cohorts 25-34, Sick time predicts time

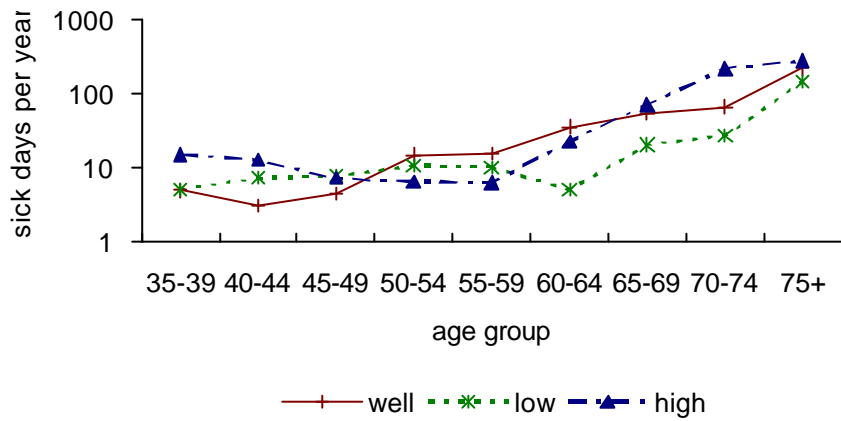


Figure 2a1 Morcott, 1725-99 cohorts 25-34, Sick time predicts time

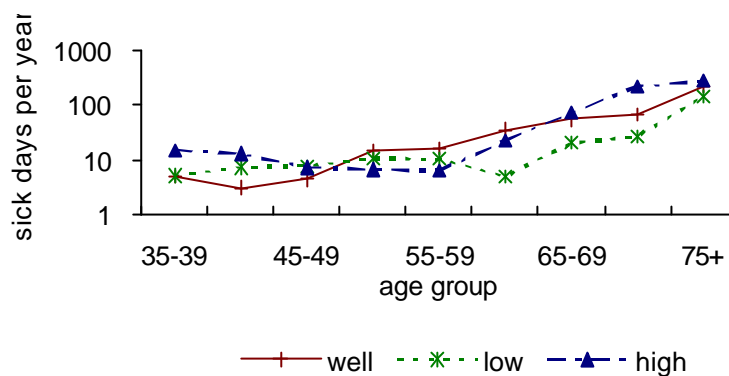


Figure 2a2 Morcott, 1725-99 cohorts 35-44, Sick time predicts time

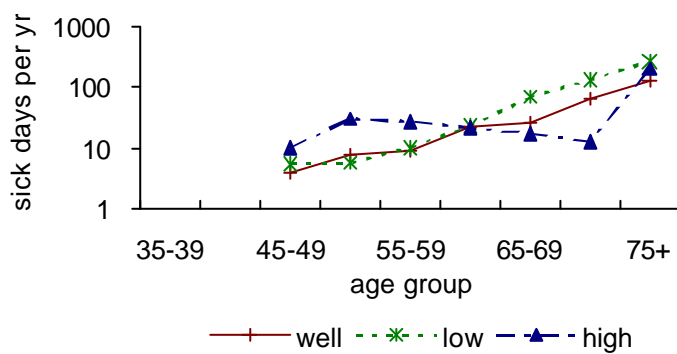


Figure 2a3 Morcott, 1725-99 cohorts 45-54, Sick time predicts time

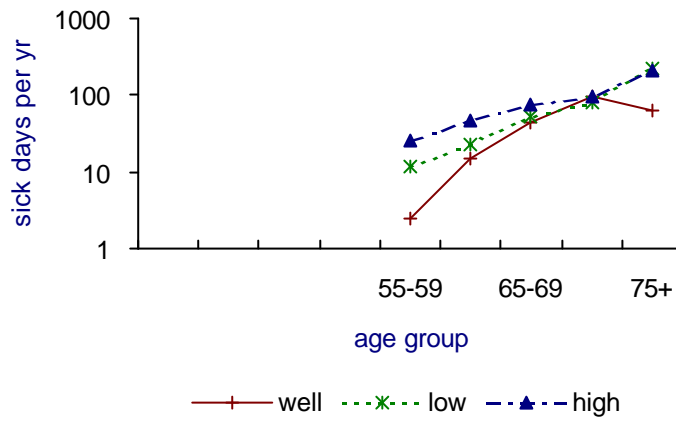


Figure 2a4 Morcott, 1725-99 cohorts 55-64, Sick time predicts time

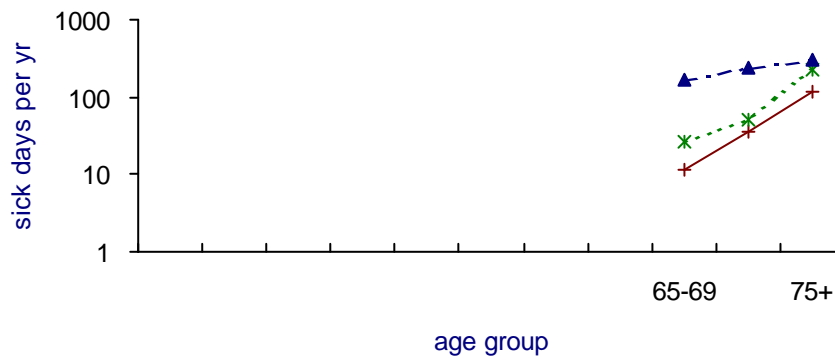


Figure 2b1 Morcott, 1725-99 cohorts 25-34, Sick time predicts net incidence

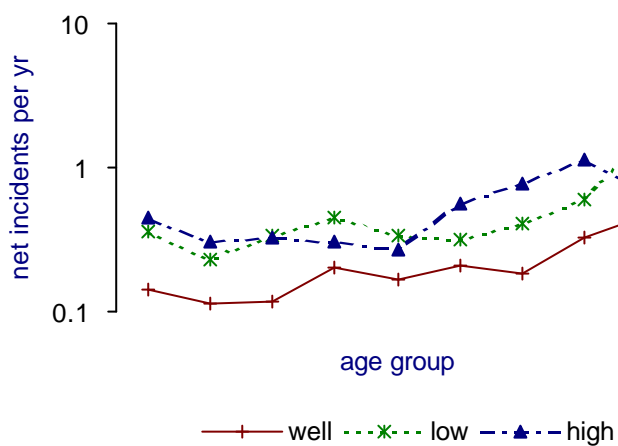


Figure 2b2 Morcott, 1725-99 cohorts 35-44, Sick time predicts net incidence

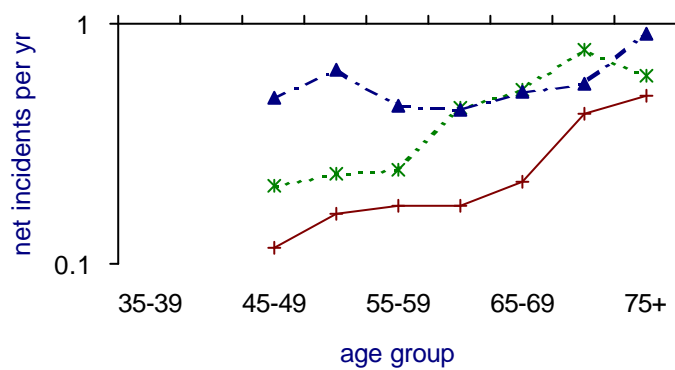


Figure 2b3 Morcott, 1725-99 cohorts 45-54, Sick time predicts net incidence

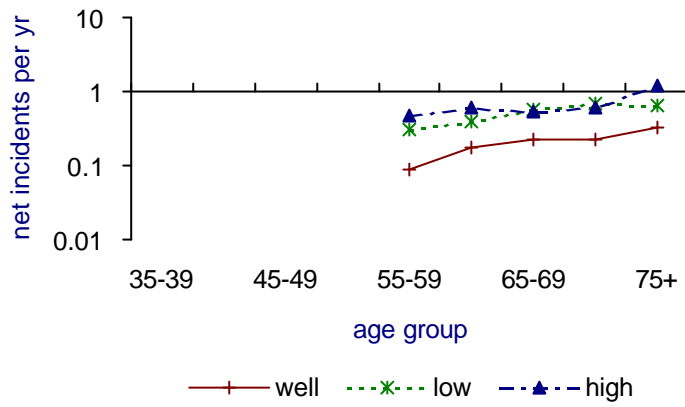


Figure 2b4 Morcott, 1725-99 cohorts 55-64, Sick time predicts net incidence



Figure 3a1 Ashborne, 1770-99 cohorts 25-34, Sick time predicts time

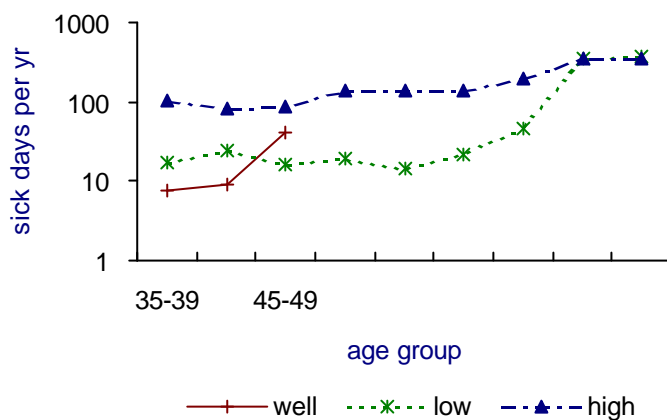


Figure 3a2 Ashborne, 1770-99 cohorts 35-44, Sick time predicts time

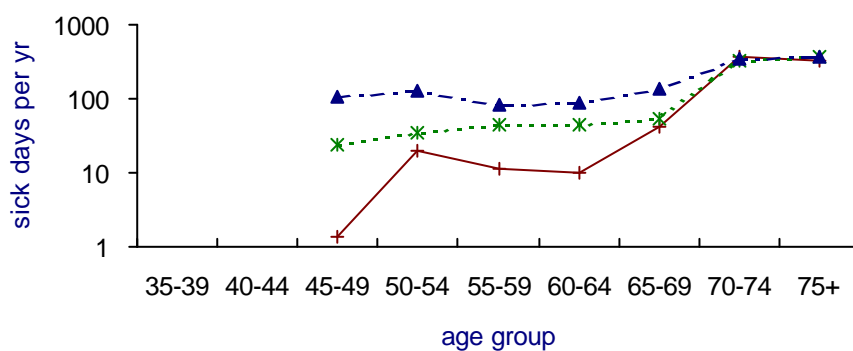


Figure 3a3 Ashborne, 1770-99 cohorts 45-54, Sick time predicts time

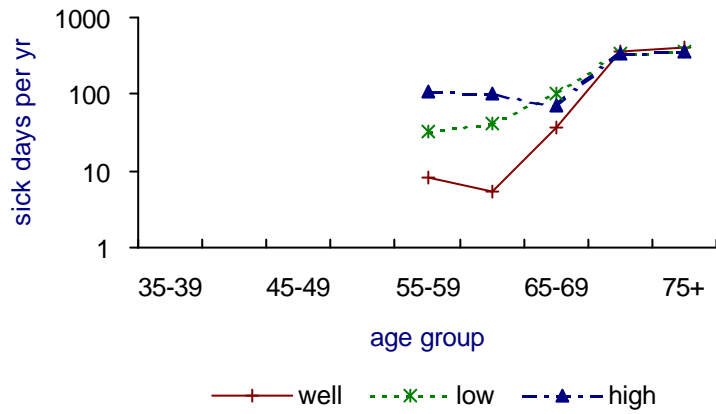


Figure 3b1 Ashborne, 1770-99 cohorts 25-34, Sick time predicts net incidence

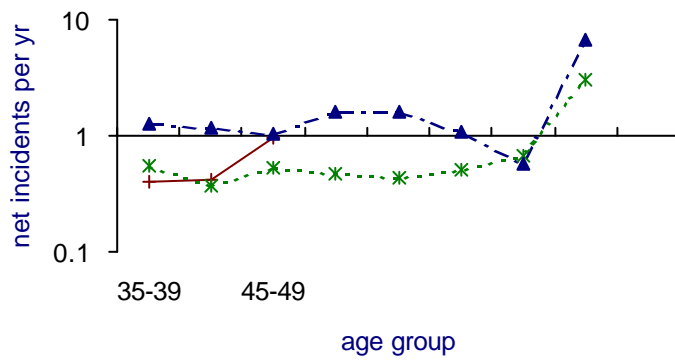


Figure 3b2 Ashborne, 1770-99 cohorts 35-44, Sick time predicts net incidence

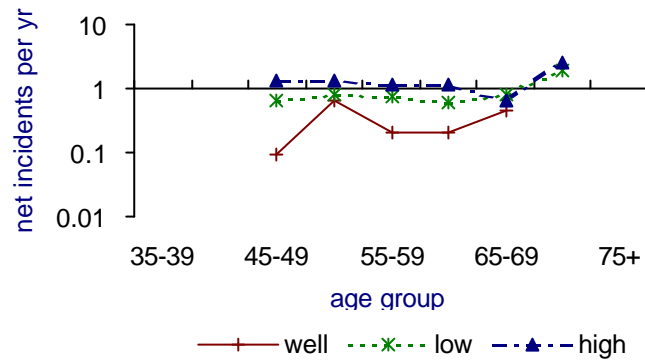


Figure 3b3 Ashborne, 1770-99 cohorts 45-54, Sick time predicts net incidence

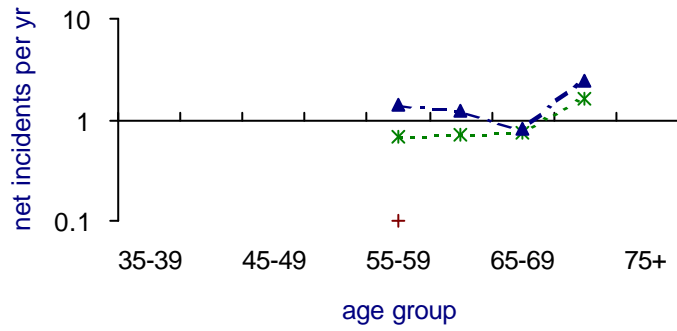


Figure 4a1 Morcott, 1825-74 cohorts 25-34, Sick time predicts time

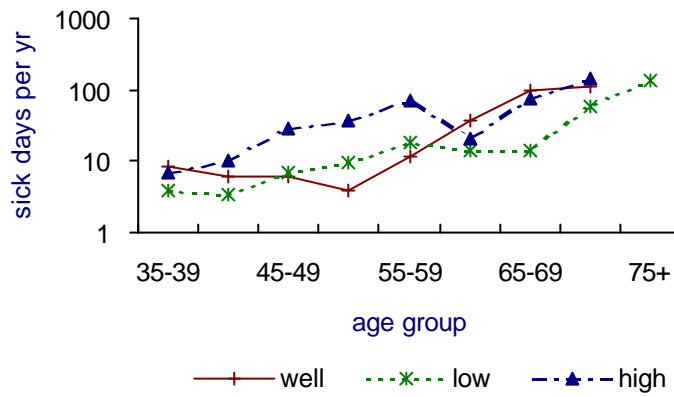


Figure 4a2 Morcott, 1825-74 cohorts 35-44, Sick time predicts time

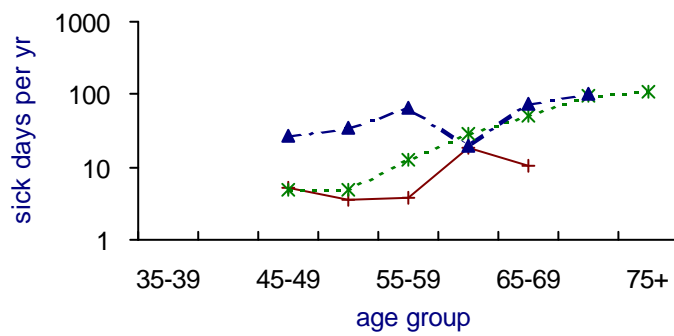


Figure 4a3 Morcott, 1825-74 cohorts 45-54, Sick time predicts time

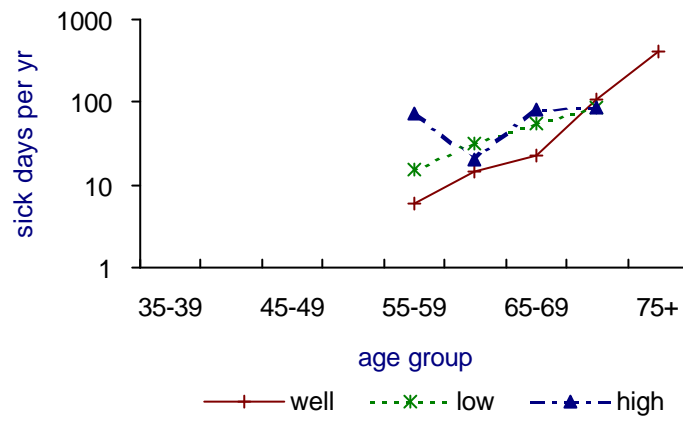


Figure 4a4 Morcott, 1825-74 cohorts 55-64, Sick time predicts time

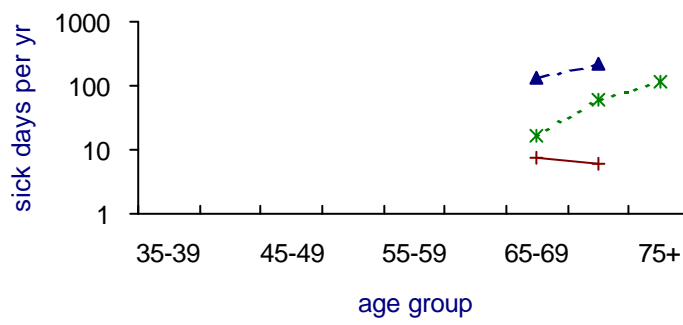


Figure 4b1 Morcott, 1825-74 cohorts 25-34, Sick time predicts net incidence

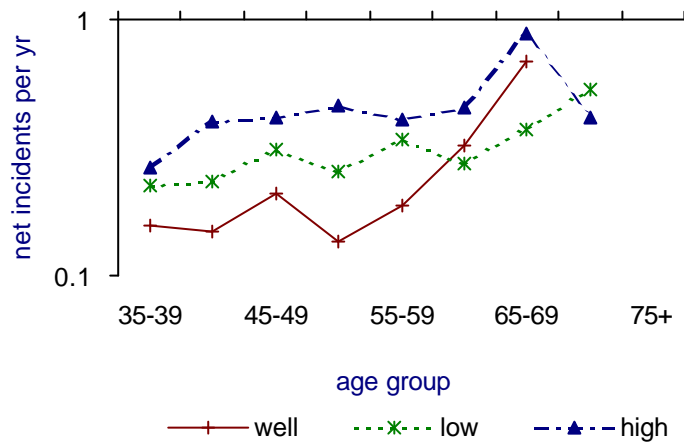


Figure 4b2 Morcott, 1825-74 cohorts 35-44, Sick time predicts net incidence

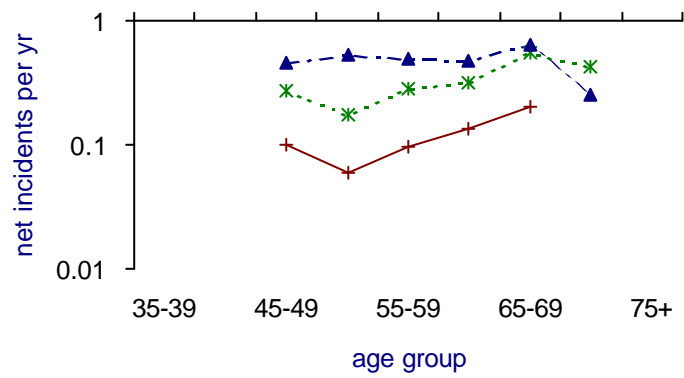


Figure 4b3 Morcott, 1825-74 cohorts 45-54, Sick time predicts net incidence

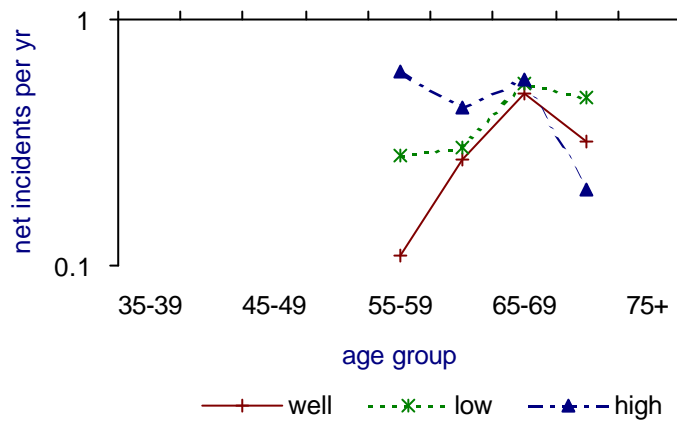


Figure 4b4 Morcott, 1825-74 cohorts 55-64, Sick time predicts net incidence

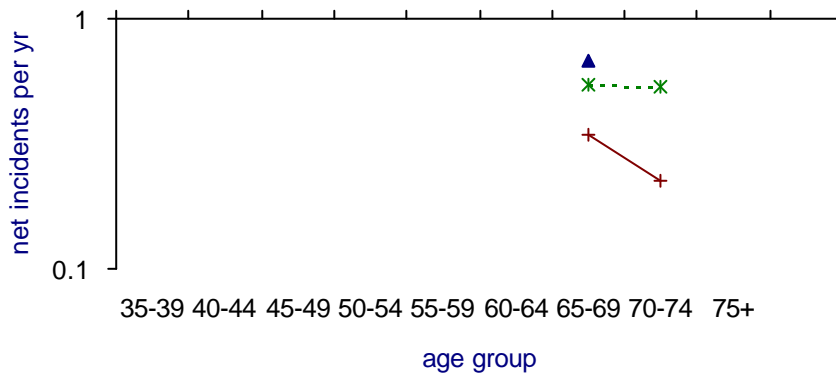


Figure 5a1 Ashborne, 1825-74 cohorts 25-34, Sick time predicts time

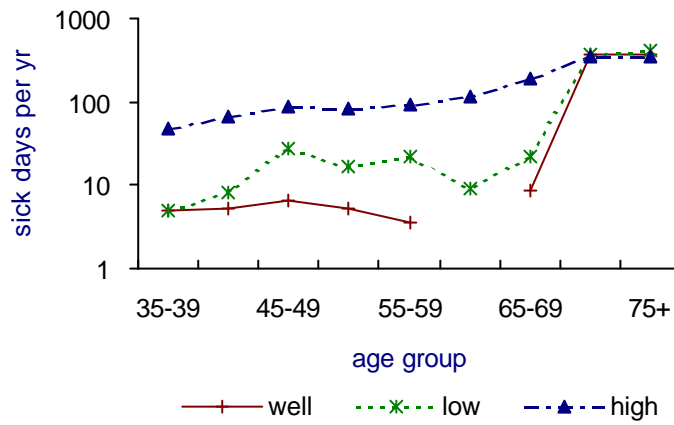


Figure 5a2 Ashborne, 1825-74 cohorts 35-44, Sick time predicts time

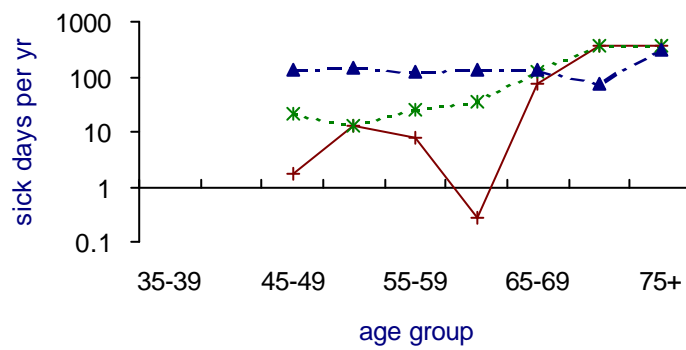


Figure 5a3 Ashborne, 1825-74 cohorts 45-54, Sick time predicts time

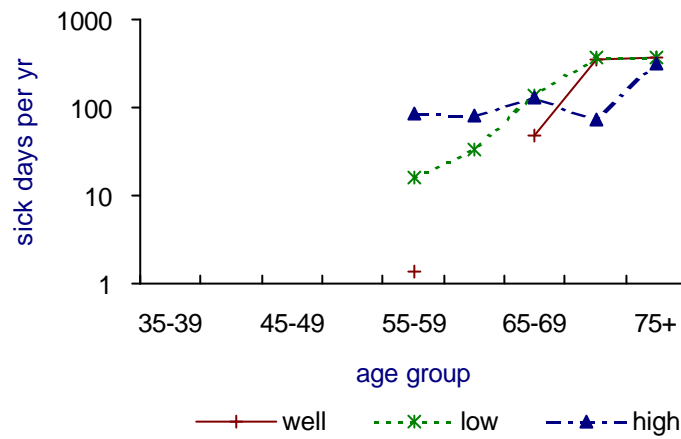


Figure 5b1 Ashborne, 1825-74 cohorts 25-34, Sick time predicts net incidence

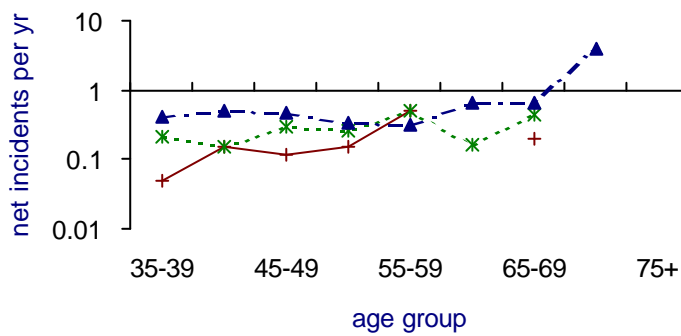


Figure 5b2 Ashborne, 1825-74 cohorts 35-44, Sick time predicts net incidence

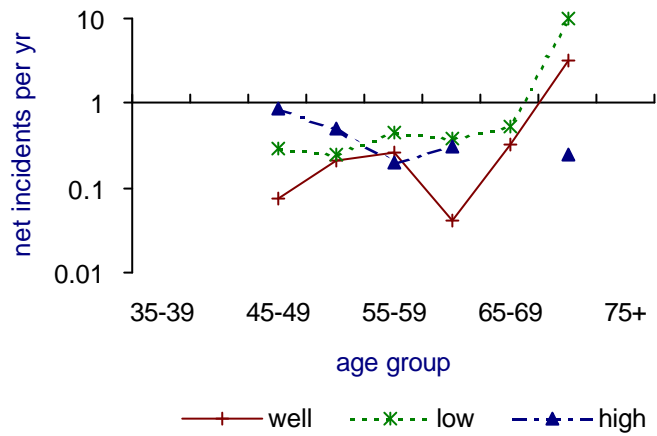
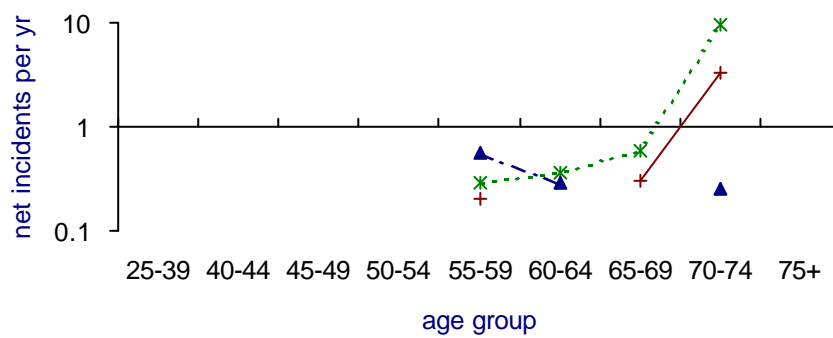


Figure 5b3 Ashborne, 1825-74 cohorts 45-54, Sick time predicts net incidence



Taken together, Figures 2-5 suggest the following interpretations. (1) Current health experience successfully predicted future health for 15 years or more. (2) Current health predicted future health more effectively and longer for sickness events than for sick time. (3) These populations entered adulthood already differentiated in their current health experience, and that differentiation persisted over time. The first signs of weakness in differentiation typically appear when sick time or net incidence in the high category converges toward the low category as its sickest members died, rather than because its members gained a better health status.

(4) The patterns that are apparent in cohorts born in the eighteenth century remained in place among cohorts born in the years 1825-1874. The passage of time and the health transition depicted in the life and wellness expectations sketched in Tables 4 and 5 did not bring a structural change in the relationship of prior to subsequent health experience. Men and women alike joined categories of the sick and the well, or of the often sick rather than the infrequently sick, by early adulthood, and tended to retain those positions as they aged, despite major changes in the health environment. The persistence of these patterns across time suggests that whatever environmental forces influenced both the exposure to sickness and the duration of sickness episodes were already in place in early adulthood, and perhaps sooner. These findings do not rule out the claim that biological forces played a larger role than environmental forces in determining health status. They do seem to rule out any claim that changing environmental circumstances played a larger role than the spectrum of environmental and biological forces in effect in early adulthood.

(5) Finally, Figures 2-5 suggest another form of male-female differences in health experience. Men and women alike appear to occupy positions in a hierarchy of health states and to remain in those positions. But women appear to persist in their health states longer than do men. That tendency is especially noticeable in these figures by the lesser likelihood of convergence between the low and high sickness groups among women than among men, regardless of whether the prediction concerns future sick time or future sickness incidence. Among the Ashborne women more often than among the Morcott men, the three categories remain separate.

Conclusion

In individual experience change and stability alike characterized the health transition. Evidence from the men and women who belonged to the Morcott and Ashborne friendly societies suggests two changes of importance, and one continuing feature. First, the risk of initiating a new sickness episode declined between cohorts born in the eighteenth century and those born in the period 1825-1874, for men and women alike. But the average duration of each sickness increased. Hence, in the second change, survival time rose more sharply than did well time. Health improved, in that people lived longer and experienced fewer episodes of disease and injury. But it did not improve in the average duration of sickness episodes or in the proportion of adult life spent in sickness as opposed to wellness.

Shifting attention from sickness and survival rates to health experience across the adult life course, the men and women of Morcott and Ashborne show continuity rather than change. In the eighteenth-century cohorts wellness earlier in adult life reliably predicted a future of wellness, and sickness predicted sickness. Sickness at earlier ages typically predicted a distinctive future of sick time for 15 to 20 years, and it predicted a distinctive future risk of initiating a new sickness for an even longer period. Those patterns remained in place among cohorts born in the years 1825-1874. In those terms sickness experience does not appear to have been random. Instead, for eighteenth-century cohorts who presumably died chiefly from

infectious diseases and for mid-nineteenth-century cohorts who died principally from respiratory diseases, health experience seems to have been determined to a significant degree by individual characteristics present by early adulthood. Even though the environmental and epidemiological regimes of mortality and morbidity changed in notable ways across the years lived by members of those two cohorts, these men and women continued to assume hierarchical positions of wellness and sickness by early adult life and to retain those positions as they aged.

In addition to these direct implications, the evidence surveyed here suggests some indirect implications. Most of the morbidity and also the mortality risk among the Morcott men and the Ashborne women was concentrated in a subgroup of people who entered adulthood already in bad health and who for the most part preserved that status until their deaths. From this it follows that efforts to reduce adult morbidity and mortality in those populations could have been directed chiefly toward people who had been sick, insofar at least as the factors causing sickness and death in that subgroup could be isolated from factors affecting the entire population.

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