SICKNESS ABSENCE IN TEACHERS

BY

JOHN SIMPSON

From the Department of Public Health and Social Medicine, St. Andrews University

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This paper is based on the records of 738 male teachers and 1,684 female teachers employed by Edinburgh Corporation during the academic year September 1, 1954 to July 31, 1955. The amount and distribution of sickness absence has been assessed by age and sex; and comparisons have been made with similar rates in the academic year 1950/51 to determine trends in absence. An interesting feature is that the amount and duration of sickness absence experienced by single and married women teachers is equivalent.

One finding of importance is that in both male and female teachers the highest inception rates for sickness are found at the beginning of a career in teaching. It is suggested that this supplies additional evidence that man's reactions to the situations he encounters in his daily life may affect his internal processes; that man's susceptibility to illness during adult life is, to a large degree, influenced by his relation to the society in which he works. The influence of promotion has been assessed in terms of this hypothesis.

Health and disease are correlates, each defines a type of adaptation to some life situation (Stieglitz, 1949). Man can adapt to a great variety of climates but most men break down when subjected to stress, either physical or emotional, which is in excess of tolerance. According to Wolff (1953), stress developing from a situation is based, principally, on the manner in which the affected subject perceives the situation. Forssman (1955) has suggested that a considerable proportion of sickness absence is caused by a maladjustment at work; and as Mayo (1949) has shown, such maladjustment correlates with perception within a work situation. Sickness absence, therefore, appears to be a biological phenomenon which may be modified or qualified by social or emotional factors. This is an interpretation of sickness absence which is gaining increasing currency; and work by Ling (1954), Davies (1952; 1954; 1958), and others has shown the hypothesis to have a factual basis.

This paper analyses the records of Edinburgh Education Authority in the academic year September 1, 1954 to July 31, 1955. The Authority maintains records of all established teachers and for administrative purposes requires details of absences of all durations from part of a day up to "n" days. These absences are recorded as permissive absence or sickness absence. The majority of sickness spells end with a return to work well within a period of

six months, but a few teachers have spells which last longer than six months. The inclusion of these figures causes the age-group statistics to lose homogeneity, consequently absences of more than six months' duration have the first 182 days only recorded. During sick leave teachers are on full pay for six months and half pay for a further six months.

In the industrial field, generally, women are regarded as being more prone to sickness absence than men. This was first observed by Wyatt, Marriott, and Hughes (1943) who showed that married women were absent more frequently than single women and for longer periods, but who qualified this generalization by showing that single women had a much higher proportion of short-term absences than did married women. Wyatt's investigation was concerned with the amount and distribution of absence and not with the causes of this absence. Anderson (1954) showed that the increase in the average length of absence of married women compared with single women was mainly due to the weighting introduced by pregnancy and child-bearing.

In an initial 10% sample of the teachers of the Education Authority, it was found that the age-specific sickness absence of married women teachers did not differ significantly from that of unmarried women. The average severity rate for all women for

TABLE 1
ABSENCES OF ONE, TWO, OR THREE DAYS' DURATION (1954-55)

Age	Male Teachers					Female Teachers				
	No.	No. of Days Sickness Absence	Average Annual Duration per Person	No. of Spells	Annual Inception Rate	No.	No. of Days Sickness Absence	Average Annual Duration per Person	No. of Spells	Annual Inception Rate
20-	2	—	—	—	—	207	61	0.29	98	0.47
25-	77	20	0.26	24	0.31	246	53	0.21	102	0.41
30-	106	23	0.21	34	0.32	125	26	0.21	39	0.31
35-	105	20	0.19	26	0.25	105	23	0.22	19	0.18
40-	134	46	0.34	51	0.38	150	52	0.35	45	0.30
45-	139	44	0.32	56	0.40	274	71	0.26	101	0.37
50-	85	13	0.15	17	0.20	250	60	0.24	77	0.31
55-	45	9	0.20	13	0.29	169	25	0.15	59	0.35
60-	45	9	0.20	17	0.38	122	30	0.25	33	0.27

insured sickness was 17 days; the rate for married women was 15 days and the rate for unmarried women was 18 days. For non-insured sickness some 36% of unmarried women recorded absences whereas the frequency rate in married women was only 23%. It is perhaps worthy of mention that in teaching, pregnancy and child-bearing imply withdrawal from this profession for at least a number of years, whereas in other sectors of employment this is not necessarily so. On the basis of the findings of this pilot study the marital status sub-division in women teachers was ignored in the major analysis.

Age and Sex Distribution of Sickness Absence

In recent years it has become conventional to consider differences in short-term and long-term absences; a short-term absence being defined as one of one, two, or three days' duration, and a long-term absence being one of four days' duration and more. Gafafer (1943), Hazard (1951), Buzzard and Shaw (1952), Denerley (1952), Bevan and Lewis-Faning (1954), Fortuin (1955), Simpson (1956), Norman and Spratling (1956), and Norman (1958) have all shown that the incidence of long-term illness is in direct proportion with age and that short-term illness has an inception rate in inverse proportion to age.

All the absences recorded in this paper refer to calendar days, not working days; a teacher who was absent on Friday is recorded as having three days' absence if he returned on the Monday following.

Table 1 presents absence rates for illnesses of one, two, or three days' duration. In male teachers the inception rate shows a fall from age 25 to age 39 but thereafter the rate fluctuates; women teachers show the same type of pattern. The average annual duration of absence shows much the same pattern in both men and women teachers, with a fall in duration until about age 40 and then a fluctuating curve. Table 2 gives the absence rates for illnesses lasting for four days or more; and again there is evidence of a phase of relatively high morbidity in the age group 25 to 29 and a phase of low morbidity around 35 to 39 in men teachers, but in women the low point is not reached until a later age although the same type of pattern is disclosed.

Fig. 1 illustrates the patterns in inception rates for both men and women teachers and may be compared with Fig. 2 which illustrates the patterns in inception rates in 1950-51. In these graphs the pattern in male teachers seems to be confirmed, in that there is a fall in the inception rate of spells of sickness absence at ages 25 to 39, a rise in the age group 40 to 44 and then a variable distribution

TABLE 2
ABSENCE OF FOUR DAYS' DURATION OR MORE (1954-55)

Age	Male Teachers						Female Teachers					
	No.	No. of Days Sickness Absence	Average Annual Duration per Person	No. of Spells	Annual Inception Rate	Average Length of Spell (days)	No.	No. of Days Sickness Absence	Average Annual Duration per Person	No. of Spells	Annual Inception Rate	Average Length of Spell (days)
20-	2	(11)	—	(1)	—	—	207	1,680	8.11	107	0.52	15.7
25-	77	226	2.93	24	0.31	9.4	246	2,094	8.51	129	0.52	16.2
30-	106	507	4.78	34	0.32	20.5	125	976	7.81	52	0.42	18.7
35-	105	380	3.62	24	0.23	15.8	105	621	5.92	39	0.37	15.9
40-	134	532	3.97	32	0.24	16.6	150	841	5.61	55	0.37	21.8
45-	139	844	6.07	44	0.32	25.8	274	1,690	6.16	80	0.29	25.6
50-	85	505	5.94	32	0.37	15.8	250	2,035	8.14	89	0.36	23.0
55-	45	324	7.20	20	0.44	16.2	169	1,569	9.28	75	0.44	24.7
60-	45	343	7.62	16	0.38	21.4	122	1,044	8.55	43	0.35	24.2

Figures in parentheses indicate that the numbers were so small that no further action was taken regarding them.

FIG. 1.—Inception rates 1954-55.

FIG. 2.—Inception rates 1950-51.

among the older age groups. A similar pattern is confirmed for female teachers.

Fig. 3 compares the average annual duration of sickness absences lasting four days or more in the two periods 1950-51 and 1954-55. It seems clear that the equivocal relation to age shown for this rate in Tables 1 and 2 is repeated in the statistics for 1950-51. The smooth rise shown by Norman and Spratling

(1956) for the clerical and technical staff of London Transport does not appear to be a feature of the teaching profession.

Age and Sex Differences in Sickness Frequency

"The sicknesses experienced by any group of employees during a particular period of time are not uniformly distributed among the employees" (Gafafer, 1943). In 1940, and again in 1943, Gafafer made a study of this phenomenon and he applied the term "repeater" to the employee with frequent episodes of sickness absence (Gafafer, 1940, 1943). Subsequently Hazard (1951) and Plummer and Hinkle (1955) have shown that from one-third to one-half of all employees do not record sickness absence in any one 12-month period; and that of the remainder one-half to three-quarters contribute most to sickness absence. The phenomenon of the "repeater" is one of considerable importance to any employing organization: the behaviour pattern of this group and the size of the group reflect, among other things, the morale structure of the organization and the intensity of economic pressures on the particular group or groups of which the "repeaters" form a sample (Plummer and Hinkle, 1955).

Table 3 gives the observed and expected percentages of teachers with no sickness absence, with one episode of absence, and with two or more episodes of absence. Disease, as such, is a dysfunction of the human organism; a maladjustment of the organism with the total environment. This being so the

FIG. 3.—Absences of four days' duration and more.

TABLE 3
OBSERVED AND EXPECTED DISTRIBUTION OF ABSENCE FREQUENCY (1954-55)

Age	Male Teachers						Female Teachers					
	Observed Frequency (%)			Expected Frequency (%)			Observed Frequency (%)			Expected Frequency (%)		
	0	1	2+	0	1	2+	0	1	2+	0	1	2+
20-	—	—	—	—	—	—	38.94	39.42	21.64	37.91	36.73	25.36
25-	58.23	30.38	11.39	54.88	32.93	12.19	44.53	53.79	22.68	39.15	35.67	24.18
30-	54.72	28.30	17.28	50.74	34.38	14.88	55.04	29.46	15.50	48.34	35.09	16.57
35-	65.71	20.95	13.33	59.30	30.94	9.76	58.49	28.30	13.21	53.39	33.45	13.16
40-	58.95	29.85	11.20	54.26	33.15	12.59	50.98	22.88	26.14	40.14	36.62	23.24
45-	52.52	33.09	14.39	49.08	34.21	16.01	57.03	27.80	15.17	51.72	34.04	14.24
50-	61.17	27.05	11.78	55.56	32.62	11.82	56.74	28.97	14.29	51.96	33.95	14.09
55-	53.33	28.89	17.78	48.08	35.16	16.76	55.62	25.44	18.94	45.54	35.97	18.67
60-	55.56	24.44	20.00	47.03	35.42	17.55	57.72	27.64	14.64	53.97	35.03	11.00
All teachers	54.41	28.32	13.96	52.79	33.66	13.55	51.36	29.71	19.47	46.06	35.66	18.28

distribution of sickness within any group of people should occur at random; that is, any person in an employing organization has an equal chance of being disabled by sickness at any time within an observation period. In consequence the expected proportions of teachers with no absence, with one absence, and with two or more absences within any academic year may be computed from the average number of absences per teacher per observation period.

This supposition is not entirely valid since some teachers may well have a greater probability for sickness absence than others; those who suffer from chronic bronchitis, peptic ulcer, and hypertension have a much higher probability for absence than otherwise healthy teachers; and a teacher absent by reason of sickness is removed from the number at risk for absence.

Greenwood and Yule (1920) have shown that the frequency of accidents in industry bears a relation to the Poisson distribution; they base their hypothesis on the proposition that an industrial population is composed of persons with different degrees of accident proneness, and then demonstrate that the Poisson distribution gives a reasonable fit to the observed frequency distribution. Fortuin (1955) has shown that the observed distribution of sickness episode frequency approximately follows the Poisson distribution. He based his observations on data from the Philips Gloeilampenfabriken, Eindhoven, Holland, which included both pre-war and post-war experience.

The details of these studies show that the presence of persons with liability to frequent episodes of absence causes deviations between the observed and the expected percentage distributions. The observed proportions of persons with no absence and with frequent absence appear higher than the expected value.

From the details of Table 3 it appears that the Poisson distribution fits male sickness absence better

than it does the female distribution. For "all men" the observed proportion with no record of sickness absence in 1954-55 is 54.41% with a standard error of ± 1.83 ; the difference between the observed proportion and the expected proportion is less than twice this standard error. In women teachers, the difference of 5.30% between the observed proportion of "all women" with no record of sickness absence in 1954-55 and the expected proportion is greater than twice the standard error of ± 1.23 which is the standard error of 51.36%. In the age group detail of the Table, the Poisson distribution fits the sickness absence of male teachers except in the 35 to 39 age group. In this age group the difference of 6.41% between the observed proportion of men with no record of sickness absence and the expected proportion is greater than twice ± 3.14 , the standard error of 65.71%; in 1950-51 the difference of 6.02% is twice ± 3.01 , the standard error of the observed frequency of 66.67%.

Plummer and Hinkle (1955) were concerned with employees who had frequent absences and concluded that the behaviour pattern of this group reflected the intensity of pressures on the group. It might also be that economic and other pressures have the opposite effect of reducing the frequency of absence, and this could provide an explanation of the absence frequency pattern in the 35 to 39 age group.

Fig. 4 illustrates the percentage distribution of promoted teachers. In male teachers in the 35 to 39 age group the index of promotion* is 207, in the 40 to 44 age group it is 127, and in the 45 to 49 age group it is 31. The 35 to 39 age group therefore emerges as a "critical" age group for early promotion, with the 40 to 44 age group as one with good prospects for promotion and 30 to 34 age group as the entry into the "promotion zone". The statistics for 1950-51 tend to confirm this pattern, the

* The index of promotion is defined as the percentage increase in observed promotion in one age group in relation to the next younger age group.

FIG. 4.—Percentage distribution of promoted teachers.

promotion indices for the 35 to 39, 40 to 44, and 45 to 49 age groups being 291, 93, and 70 respectively. In women teachers promotion probability appears to be slight and to be postponed for at least five years beyond that of men. In the 40 to 44 age group the index of promotion of women was 152 for the period 1954-55 and 113 for the period 1950-51.

During the periods 1950-51 and 1954-55, some 84 male assistant teachers received promotion and some 316 remained assistant teachers. Of this group of 316 teachers, 197 were between the ages of 30 and 44 in 1950-51; of the group of 197 assistant teachers 42.13% had no record of sickness absence in either 1950-51 or 1954-55, whereas of the other 119 only some 30.25% had no record of sickness absence in both periods. The standard error of the difference between these percentages is 5.59, so the difference is significant at the 5% level. This seems to suggest that sickness absence in assistant teachers aged 30 to 44 is under a type of control, and it may be that probability of promotion is the responsible factor.

Discussion

The patterns of absence frequency and duration, which teachers disclose, do not follow the generally accepted patterns described by other workers (Sutherland and Whitwell, 1948; Norman and Spratling, 1956), in which both frequency of absence and duration of absence increase with age. In male teachers there is a relatively high inception rate for sickness absence at the beginning of the career of teaching followed by a phase of low morbidity in the 35 to 39 age group which is then succeeded by a phase of variable frequency at higher ages. This is shown most markedly in the short-duration absences

although there is also a phase of lower morbidity around the 35 to 39 age group in the long-duration absences (Table 1). A somewhat similar type of pattern is shown by the women, but there is no apparent correlation with a "promotion zone". The factor of promotion does seem to exert a modifying influence on the pattern of male sickness absence, especially in the 30 to 44 age group, in that a significantly high proportion of assistant teachers in this age group appear to avoid absence by reason of sickness under the stimulus of promotion, but although this may partially explain the fall in the male inception rate for sickness absence between ages 25 to 39, it can have little influence on the female inception rate; yet this rate is also higher at the beginning of the career in teaching than at any subsequent age. The number of teachers on whom the deductions about promotion are based is small, and the conclusions should be interpreted with caution.

A possible explanation of this pattern in sickness absence may be found in work reported by Hill and Trist (1953). They have established a relation between sickness absence and certain socio-economic factors. Absences of all forms were considered under the inclusive concept of withdrawal from work. Absence is essentially a "stayer" phenomenon and may be defined as being away from work while remaining an employee. In this way absence becomes the reverse of labour turnover, and is used to provide a means of temporary withdrawal from the stress of continuing in, as distinct from breaking, a work relation. It is not until an individual has established a "settled connexion" with an employing organization that sickness absence becomes the recognized and accepted mechanism for withdrawal from a work situation in which stress may have been sufficiently in excess of tolerance to be manifested as physical disability.

According to Hill and Trist, each of the three socio-economic phenomena, labour turnover, casual absence, and sickness absence, defines a specific means of withdrawal from a work situation, and together these phenomena define progressive stages in the social adaptation to, and integration of, an individual into a work situation and work group. Social adaptation, according to Mayo (1949), implies that the adjustment of the whole organism, acting as a unit and governed by the emotional and nervous systems, is adequate to a particular point in a given situation; this also implies a balanced relation between technical and social skills.

As a result of the type of training required for a teaching career, and of the length of that training, the majority of teachers enter into active economic life in the phase of "settled connexion" with the

career of teaching and within the career structure of an Education Authority or its equivalent, yet each new teacher is equipped merely with the scientific and educational basis for the development of the technical skill of teaching. The interaction of these two factors—if perceived either implicitly or explicitly, provides a primary source of stress which may manifest itself somatically as a physical disability which then permits sanctional withdrawal in the form of sickness absence. This mechanism provides a rational explanation for the high level of sickness absence at the beginning of a teaching career, which is then followed by a progressive improvement in the frequency of absence as the technical skill of teaching is mastered. This mechanism permits one of two things; it permits the individual to subdue a stress potential sufficiently until the necessary experience in the technical skill of teaching is gained for resolution of the stress potential, and it permits the individual to use the withdrawal mechanism in order to continue in his, or her, role and position. This may be the mechanism which permits the teaching profession to attain the adjustment adequate to a particular point in a situation, and which permits the development of understanding and acceptance of a common purpose which is necessary for effective action.

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