INCIDENCE OF MINOR MALADIES AND THEIR RELATIONSHIP TO INTELLIGENCE IN SCHOOL CHILDREN

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This paper is based on the records of medical consultations over a period of one school year at a War Office sponsored boarding school situated in northern Germany. The school, which catered for some 650 children aged 11 to 18 years whose intelligence varied between wide limits, provided boarding accommodation for both sexes. The pupils were drawn from British Forces families in Germany. No differentiation in living conditions was made at this school between dull or bright children. The boarding houses were basically similar and provided a high degree of comfort. Most dormitories contained two to four beds and were centrally heated. Toilet facilities were good with adequate showers and baths and constant hot water.

The school meals were well planned, adequate in amount, and supervised by teachers who saw that all children had a normal varied diet. Clothing for all children conformed to minimum requirements stipulated by the school. Soiled clothes were laundered once weekly and house matrons ensured that they were kept clean and mended. The teaching staff actively encouraged the children to maintain a high standard of personal cleanliness. They were also quick to notice any ailing child who was promptly sent to see the doctor.

In short, the environment for the pupils whilst at school was uniform and its effect on the differences in disease rates was therefore minimized.

The medical staff consisted of one whole-time medical officer, one hospital matron, and four nurses. All routine treatments to ambulant patients were given in the medical centre. The school hospital had eighteen beds and was designed to deal with short-stay patients. Serious cases were sent to the nearest British Forces hospital.

Every effort was made to prevent attendance at the medical centre being used as an excuse for absenteeism. Consulting and treatment times were held at the centre outside normal school hours and

any child detained there was given a note for the teacher stating the time of dismissal.

For the period under review (September, 1953, to July, 1954) a treatment record card was kept for every child attending the medical centre. Each consultation was noted on the card and new cases were entered in a disease group index. The entries on the cards were those dealing with everyday illnesses and did not include routine medical examination findings. Patients requiring treatment in bed were admitted to the school hospital and their particulars and case summaries were recorded in the admission register.

The children were divided into two groups according as their Intelligence Quotients (I.Q.) were less or greater than 110. This figure was chosen in order to give groups comparable with secondary modern school and grammar school pupils in England. The numbers in each group were sufficiently close to permit a comparative study.

Mental testing was carried out by means of the Moray House tests taken at the age of 11 years. The results were available for the majority of children and the remainder were classified by being given an advanced test or being interviewed by a teacher panel.

It has been found that the group intelligence tests give results comparable with those obtained by the Termanized-Binet test (Moray House test series). Previous work (Terman, 1921) showed that the I.Q. for a given child remained remarkably constant, and re-tests during periods of from 2 to 7 years gave similar results. For the purpose of this study the composition of each group was taken to be constant except for minor variations due to school leavers and new entrants.

At the beginning of each term a census was taken of all children in attendance in order to minimize the effect of changes in the school population on the calculation of rates per hundred.

Table I shows the average composition of each group.

TABLE I
NUMBERS OF CHILDREN ATTENDING SCHOOL

Term	No. of Children	
	I.Q. below 110	I.Q. 110 or over
Autumn	342	286
Spring	335	292
Summer	343	302
Mean	340	293

DISEASE INCIDENCE

The causes of illness are listed in Table II which is self-explanatory except that the groups headed "upper respiratory tract infections", "other skin disorders", and "stress" warrant further clarification:

- (1) *Upper Respiratory Tract Infections*.—These included colds, sore throat, laryngitis, and bronchitis. Cases with pyrexia were admitted to the school hospital for treatment. Other cases were treated as out-patients.
- (2) *Other Skin Disorders*.—These included such conditions as warts, allergic dermatitis, hyperhidrosis, and fungus infections other than athlete's foot.

TABLE II
INCIDENCE OF ILLNESS ACCORDING TO INTELLIGENCE

Disease Group	Total Illnesses		Children			
	Number	Per cent. of Total	I.Q. below 110		I.Q. 110 or over	
			No. of Illnesses	Rate per 100	No. of Illnesses	Rate per 100
Upper Respiratory Tract Infections ..	768	35.2	491	144.4	277	94.4
Sprains and Bruises ..	380	17.4	229	67.4	151	51.5
Pyogenic Skin Infections ..	309	14.2	225	66.2	84	28.7
Miscellaneous ..	185	8.5	104	30.6	81	27.6
Other Skin Disorders ..	157	7.2	80	23.5	77	26.3
Wounds ..	123	5.6	87	25.6	36	12.3
Athlete's Foot ..	107	4.9	59	17.4	48	16.4
Stress	56	2.6	27	7.9	29	9.9
Mosquito Bites	41	1.9	24	7.1	17	5.8
Middle Ear Disease ..	32	1.5	19	5.6	13	4.4
Chickenpox ..	25	1.1	14	4.1	11	3.8

- (3) *Stress*.—This included cases of "home-sickness". The majority of such cases occurred during the first 3 weeks of term and those affected were mainly new entrants. The presenting symptoms were general malaise, nausea, and abdominal pain in that order of importance. Clinical examination revealed no abnormality and recovery was invariably rapid, aided by rest in the school hospital and play therapy.

The results show that upper respiratory tract infections, skin diseases (pyogenic skin infections, athlete's foot, and other skin disorders), and trauma (sprains, bruises, and wounds) accounted for 84.5 per cent. of all minor maladies occurring in this age group of 11 to 18 years. Although not indicated in Table II, serious illness played a small part as a cause of ill-health. The number of cases sent to hospital amounted to 32 in the period under review, only 1.4 per cent. of all causes of sickness.

Table II shows that in four important causes of ill-health (upper respiratory tract infections, sprains and bruises, pyogenic skin infections, and wounds) differences in the disease rates were found in the two intelligence groups.

DISCUSSION

Disease incidence and intelligence have been studied previously (Dawson, 1931) by evaluating the I.Q. of child hospital in-patients and comparing the mean value with that of a large section of the child population. No relationship was found, there being no significant difference in the mean I.Q. values. Similarly, a study of the common infectious fevers (England, 1936) showed no difference in incidence between various intelligence groups. Other workers, however, detected a slight relationship between health and intelligence and a physiological link was suggested between these two qualities (Pearson, 1923).

The present study is concerned only with those causes of ill-health which are, in the main, dealt with by the family doctor or the mother. It is interesting to note that variations in incidence occurred in the very minor maladies, and that as the severity of the infection increased, the rates became more nearly equal.

The differences in the rates of incidence of sprains and bruises and wounds could have been due to lack of skill, but may have been influenced by the fact that children of lower intelligence followed a practical course of study, so that their exposure to the risk of such accidents was greater. Such a factor played no part in upper respiratory tract and pyogenic skin infections.

CONCLUSION

In school children aged 11 to 18 years, enjoying a uniform environment, the most common causes of ill-health were upper respiratory tract infections, skin diseases (pyogenic skin infections, athlete's foot, and other skin disorders), and trauma (sprains, bruises, and wounds).

Upper respiratory tract infections, sprains and bruises, pyogenic skin infections, and wounds were found to be more prevalent in the less intelligent children. The explanation for these findings is obscure.

I wish to thank Dr. R. C. Mac Keith for his encouragement and advice. My thanks are due to the headmaster, Mr. H. E. Pacey, and his staff for their co-operation, and to Mr. T. J. Shields for help with the references. I am indebted to the Director of the Army Medical Service for permission to publish this report.

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