

A PILOT SCHOOL HEALTH SURVEY TO STUDY THE INCIDENCE OF COMMON DISORDERS IN PRIMARY SCHOOL CHILDREN AND THE ROLE OF TEACHERS IN THE SCHOOL HEALTH SERVICE

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SUMMARY

A pilot school health survey was carried out in six schools in Gombak District, Selangor. Schools were stratified into urban and rural and then into Chinese, Tamil and National type schools and primary school children were selected by systematic random sampling.

Selected students were subjected to a general health appraisal including vision and hearing tests by teachers, nurses and finally a medical officer. The findings of all three examiners were then compared taking the results of the medical officer as the indicator of accuracy.

The findings of the survey indicated that the problems of school children were similar to those reported by other workers and by MCH Division of the Ministry of Health namely dental caries, head lice, malnutrition, skin infections and visual disability. Other problems like skeletal deformity and abnormalities of heart, lung, speech and behaviour were extremely uncommon and formed only 1.5% of the total.

Teachers and nurses performed extremely well

in relation to the doctor with 93% and 95.8% concurrence respectively in detecting these abnormalities. Teachers were also requested to give a feedback on their view of and role in the SHS as well as problems faced in following the school health card. The majority perceived the SHS as a joint effort between the Ministry of Health and Education and agreed that they had a role to play in the SHS. Many teachers also indicated a willingness to carry out the various tasks in the SHS. The main problem in filling the school health card seemed to be in getting relevant details from parents though over 50% of teachers complained that there were too many details to fill.

The role of teachers in the SHS is discussed in the light of the findings of the study and recommendations are made.

INTRODUCTION

The School Health Programme (SHP) was initiated in 1967 as a joint effort of the Ministry of Health and Ministry of Education towards promoting, protecting and maintaining optimum health of school children. The School Health Service (SHS) is one component of the SHP and is the sum total of the procedures used by doctors, dentists, nurses and teachers in order to appraise, protect and promote optimum health of the pupils and school personnel.

The activities of the SHS include health appraisal and treatment of minor ailments; record-

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ing of height and weight; screening for hearing and visual defects; referral of children with special problems; immunization; emergency care and first aid; health education; guidance and counselling; deworming and dental treatment.

The SHS is at present mainly rendered by the maternal and child health (MCH) staff in addition to their other MCH activities. Complete coverage of all primary school children as well as those in Forms 3 and 5, though ideal, is not possible with the present arrangement and available manpower. Coverage is at present confined to primary school entrants (Std. 1) and leavers (Std. 6) and even this is not always completed. In addition, only 57.04% of Std. 1 and 69.5% of Std. 6 children were seen by doctors in 1983.¹ Shortage of manpower is the single most important problem faced by SHS.

To be truly effective and to detect deviations from normal health and behaviour at an early stage it would be necessary to make frequent and regular observations of students. Due to the above constraints the present service may be said to be inadequate as a child who develops an abnormality in Std. 2 may not be detected till four years later, that is, in Std. 6. One solution would be to utilize the services of a person who would be in a position to observe the student frequently and regularly. The school teacher would fit this requirement and would thus be an appropriate choice. The school teacher has the advantage of being able to observe the child daily and would thus be more likely to spot deviations from normal health early unlike health personnel who may just see the child once in a year or only after an illness has progressed to severity.

In her report on the pre-pilot school health service project, S.T. Chen² had concluded that teachers with some in-service training could perform their role in the SHS — their role being the observation of children for signs of deviation from health, measurement of height and weight, conduction of screening test for hearing and vision and co-operation with the public health nurses in the follow-up of children.

At present in most schools teachers are under-

utilized and their role is limited to filling up of the student's personal particulars in the school health card and the measuring of height and weight. It is felt that since teachers are provided with basic knowledge about health in their training curriculum they would be capable of greater inputs into the SHS. There has been recognition that teachers are capable of contributing to school health activities³ and a study in Kerala indicated that both teachers and pupils were very effective health workers.⁴

As mentioned earlier, the SHS is mainly rendered by MCH nurses with very few children being examined by doctors. Despite such a major contribution to the SHS the services of the MCH nurses have not been evaluated. S.T. Chen in her report on the pre-pilot SHS project had concluded that the public health nurse was capable of running the SHS with guidance and supervision from doctors. She stated that it was not essential to have a doctor perform the physical examination of pupils and went on to say that "the routine examination of the pupil's heart and lungs (by doctors) would be ideal but was not absolutely essential and it is definitely not of high priority".²

This implies that should the public health nurse be found efficient or capable the doctor need not accompany the nurse to schools and can limit his role to one of supervision and guidance of the public health nurse's activities. Doctors, a scarce and expensive resource, can thus be utilized more efficiently and economically in areas where their services are indispensable or more urgently needed.

Given the above problems the objectives of the study were to estimate the prevalence of common ailments in primary school children, compare the capabilities of teachers and public health nurses with doctors in detecting these ailments, gather a feedback from teachers about the SHS and their role in it and estimate the time taken by teacher, nurse and doctor to examine students and/or fill up the school health card as well as identify problems faced by teachers in the latter task.

MATERIALS AND METHODS

Sampling of schools was carried out by the Statistics Department. All schools in the state of Selangor were stratified into urban and rural and into Chinese (C), Tamil (T) and National Type schools. A 10% sample was then randomly selected from the total number of 450 schools. Of the sample, six schools were from Gombak District and the pilot study was carried out in this district for practical reasons. The schools selected were SRJK(T) Rawang, SRJK(T) Batu Caves, SRJK(T) Batu Arang (Tamil type), SRK Kuala Ampang, SK Gombak Utara (National type) and SRJK(C) San Yuk (Chinese type).

Only primary school children were included in the study and from each standard, 20 students were selected by systematic random sampling of class registers making a total of 120 students per school. Teachers from the selected schools were then briefed about the study and its objectives and were requested to participate in the study. Each teacher was required to examine students selected from his/her own class. Appointments were then given to each school for visits by the medical officer and nurse. Forms were sent to parents of selected students requesting consent for examination and treatment as well as particulars about the student's immunization, past history of illness and history of specific illness in the family. These details conformed to the details required to be filled in the school health card.

On the appointed day examinations of selected students were carried out first by the teacher then the nurse and finally by the medical officer. Examinations were carried out for specific conditions namely abnormal gait, abnormal speech, abnormal behaviour, head lice, dental caries, decreased visual acuity, skin infection, bleeding or swollen gums, squint, decreased hearing, discharge from ears and skeletal deformity. The responses of examiners for each condition were coded as positive (if the abnormality was present) and negative (if the abnormality was absent). The general cleanliness of the students was subjectively evaluated and coded as "clean" or "dirty". Each student therefore had 13 codes (one for each

condition). The responses or codes given for each condition (except for cleanliness) by the teachers and nurse were compared for concurrence with the response of the doctor for that condition. In addition to the above responses, however, teachers were given the liberty of inserting two other codes, that is to denote their inability to comment on the condition if they were unsure of the findings and to denote their unwillingness to comment on the condition if they did not wish to participate in the study. The doctor also examined students for abnormalities of heart and lungs.

In addition both the teacher and nurse had to fill a prepared format with particulars about the pupil's personal particulars and socio-economic background (filled by the teacher) and personal, family and immunization history (filled by the nurse). The format was designed to closely simulate the current school health card. The time taken to fill each format as well as the examination of each student was noted.

At the end of the day teachers who had participated were each required to fill a questionnaire which allowed them to express their views about the school health programme and their role in it. Anonymity was promised so that the teachers could be frank in their views.

RESULTS

The distribution of students examined by standard and school is shown in Table I. It is seen that the target of 120 students per class was not met in all schools. This was due to lack of consent from parents, the student being absent or, more often, to the inability of the visiting team to complete examinations in the limited period of two visits. It was not possible to visit the schools a third time as the school holidays began soon after the survey and, besides, this would have meant disrupting class schedules further.

A total of 523 students were examined. Of these 248 were males and 275 were females. 264 (50.5%) of the students were Indian while 141 (27%) were Malays, 101 (19.3%) were Chinese and

TABLE I
DISTRIBUTION OF STUDENTS BY SCHOOL AND STANDARD

School*	STANDARD						Total
	1	2	3	4	5	6	
Urban schools							
SRJK Kuala Ampang	16	19	17	7	4	0	63
SRJK (T.) Rawang	9	17	12	19	13	17	87
Rural schools							
SRJK Gombak Utara	18	19	19	15	17	18	106
SRJK (C.) San Yuk	20	19	19	12	17	9	96
SRJK (T.) Batu Caves	18	13	15	16	16	6	84
SRJK (T.) Batu Arang	19	13	14	13	16	12	87
Total	100	100	96	82	83	62	523

*(T.) – Tamil; (C.) – Chinese.

17 (3.3%) were of other races. Indians were over-represented in this study as three of the schools selected happened to be Tamil schools.

Table II shows the prevalence of common ailments detected in order of frequency and in the three main ethnic group. Dental caries was the most common disorder, seen in 336 (66.4%) of students, followed by pediculosis capitis in 217 (42.8%) of students. A substantial number were found to be malnourished as seen by the fact that 100 (19.8%) were on or below the 10th percentile in weight for age and 54 (10.7%) were on or below the 10th percentile in height for age of Malaysian standards. Percentile charts developed by S.T. Chen following repeated measurements of Malaysian school children from different socio-economic backgrounds in Petaling Jaya, Selangor, were used.⁵

Skin infections were also seen in 58 (11.5%) students and visual disability in 52 (10.3%). Other abnormalities included abnormal lung findings 6 (1.1%), squint 4 (0.8%), abnormal speech/behaviour 4 (0.8%), skeletal deformity 4 (0.8%), abnormal gums 3 (0.6%), abnormal heart finding 3 (0.6%), ear discharge 3 (0.6%) and abnormal gait 2 (0.4%). The Indians were found to be consistently worse off than the other two ethnic

groups for all ailments/disorders except for dental caries. This difference in morbidity was statistically significant.

Cleanliness of the student was also subjectively evaluated taking into consideration factors such as clothes, hair, nails and skin and it was seen that 123 (24.3%) of students could be classified as dirty and of these the highest were again Indians with 93 (35.2%) of them being classified thus compared to 20 (14.2%) Malays and 10 (9.9%) Chinese.

There were no marked difference in distribution of ailments in the different classes except for a decrease in the prevalence of dental caries with increase in standard. There was also no marked difference of prevalence between urban and rural schools or between both sexes.

Comparison of the prevalence of illness/abnormalities among primary school entrants in this study with the findings of other school health students and the report of the MCH unit indicate similarities in the type of illness/abnormalities detected as well as their order of importance or frequency. Similarities in prevalence rates are also seen for some of the conditions (Table III).

TABLE II
PREVALENCE OF ABNORMALITIES/AILMENTS IN THE THREE MAJOR ETHNIC GROUPS

Abnormality/ailment	Ethnic group						Total	Comments	
	Malay		Chinese		Indian				
	No.	(%)	No.	(%)	No.	(%)			
Dental caries	99	(70.2)	76	(75.2)	161	(61.0)	336	(66.4)	Low prevalence in Indians; no significant difference between Malays and Chinese; significant difference between Indians and Chinese.
Pediculosis capitis	36	(25.5)	37	(36.6)	144	(54.5)	217	(42.8)	Significantly high prevalence in Indians; no significant difference between Malays and Chinese.
Weight below 10th percentile	24	(17.0)	6	(5.9)	70	(26.5)	100	(19.8)	Significantly high prevalence in Indians and low prevalence in Chinese; significant difference between all three ethnic groups.
Height below 10th percentile	17	(12.1)	4	(4.0)	33	(12.5)	54	(10.7)	Highest in Indians and lowest in Chinese; no significant difference between Indians and Malays.
Skin infections	13	(9.2)	7	(6.9)	38	(14.4)	58	(11.5)	Highest in Indians; no significant difference between all three ethnic groups.
Visual disability	10	(7.1)	11	(10.9)	31	(11.7)	52	(10.3)	Highest in Indians; no significant difference among the three ethnic groups.
Others	6	(4.3)	2	(2.0)	22	(8.3)	30	(5.9)	Highest in Indians; significant difference among three ethnic groups.

TABLE III
PREVALENCE OF SOME ILLNESSES/ABNORMALITIES AMONG PRIMARY SCHOOL ENTRANTS (STD. 1) COMPARED WITH THOSE REPORTED IN OTHER STUDIES AND THOSE REPORTED BY THE MCH UNIT, MINISTRY OF HEALTH

Illness/abnormality	Present Study (1984)		Study 1* (1968 - 1969)		Study 2* (1970)		MCH Unit Report (1983)	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Dental caries	86	(86)	283	(90)	175	(85)	155,322	(57.6)
Head lice	41	(41)	107	(30)	86	(42)	49,588	(18.4)
Height below 10th percentile	21	(21)	—	—	87	(42)	—	—
Weight below 10th percentile	33	(33)	—	—	71	(35)	—	—
Skin infections	11	(11)	72	(20)	41	(20)	13,995	(1.2)
Visual disability	8	(8)	14	(4)	—	—	2,314	(0.9)
Anaemia/malnutrition	—	—	—	—	—	—	2,826	(1)
Skeletal deformity	1	(1)	4	(1)	1	(2)	—	—

*Study 1 — Morbidity Patterns amongst some Primary School entrants in Malaysia by S. T. Chen and A. E. Dugdale carried out in three Primary Schools in P.J.

Study 2 — Report on Pre-pilot School Health Service Project in Sekolah Kebangsaan Petaling, Kuala Lumpur by S.T. Chen.²

An evaluation of the performance of teachers and nurses in relation to the doctor revealed that the teachers' response corresponded 93% with the doctor's and the nurse's response corresponded 95.8% with the doctor's. Similarly teachers and nurse concurred 92% with each other.

It was also seen that out of the total of 6799 responses (for 523 students) in 114 (1.7% of cases the teacher said he/she was unable to comment because he/she was not sure of his/her findings. Only in 52 out of 6799 (0.8%) responses the teacher had said that he/she did not wish to comment and indicated a reluctance to participate in the examinations. These 52 responses were traced to one teacher in SRK Gombak Utara.

The time taken to examine each student by teachers, nurses and the doctor is shown in Table IV. It is seen that examination usually took less than 10 minutes per student. With regard to the time taken by teachers to fill particulars in formats (which simulated school health cards), 390 (74.5%) of the 523 formats were filled in less than 10 minutes with 46 (8.8%) of these taking less than five minutes to fill. In the case of nurses almost all formats, 518 (99%), were filled in less than five minutes.

A total of 93 teachers participated in the study and 89 (95.7%) of these filled a questionnaire about the school health programme and their role

in it. 75 of the 89 (84.3%) said they had a role to play in maintaining the health of school children, two (2.2%) said they did not while 12 (13.5%) did not wish to comment. The relative roles of the Ministry of Health and the Ministry of Education in the school health programme, as perceived by the teachers, were asked for. It is seen that the majority, 51 (57.3%) thought it was a joint responsibility. However a fairly large number, 29 (32.6%), thought the responsibility lay more with the Ministry of Health (19 respondents) or was the sole responsibility of the Ministry of Health (10 respondents). Eight (9%) thought the responsibility lay more with the Ministry of Education while 1 (1.1%) thought it was the sole responsibility of the Ministry of Education as it concerned school children.

Teachers were then asked to tick the activities in the school health service that they were willing to perform from a list of activities or tasks. The responses are shown in Table V. It is seen that a large number were willing to carry out SHS activities. When asked about problems faced in filling the school health card the most commonly mentioned problem was the inability to get relevant data from parents, (mentioned by 72 (80.4%) of respondents). This was followed by the complaint that there were too many details to fill, 49 (55.1%), while 23 (25.8%) said that the teachers were too busy with other duties and could not find time to fill the school health card.

TABLE IV
TIME TAKEN TO CARRY OUT EXAMINATION BY PERSON EXAMINING STUDENT

Time taken (min.)	Person examining						Total	
	Teachers		Nurses		Doctors			
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
<5	59	(11.3)	350	(66.9)	282	(53.9)	691	(44.1)
5-10	360	(68.8)	169	(32.3)	231	(44.2)	760	(48.4)
11-15	73	(14.0)	4	(0.8)	9	(1.7)	86	(5.5)
>15	31	(5.9)	0	(0)	1	(0.2)	32	(2.0)
Total examinations	523	(100)	523	(100)	523	(100)	1,569	(100)

TABLE V
FREQUENCY OF TEACHERS WILLING TO CARRY
OUT SPECIFIC SCHOOL HEALTH ACTIVITIES

Activity	Teachers willing to carry out activity	
	No.	(%)
Take height and weight of children	81	(91)
Observe children for conditions like cleanliness, abnormal behaviour, etc.	81	(91)
Refer children with problems to the nearest health service	79	(88.8)
Give health educational talks or demonstrations in the classroom	78	(87.6)
Organize children for examination by health staff	75	(84.3)
Fill the school health card	68	(76.4)
Do vision testing	68	(76.4)
Do hearing test (with tuning fork)	67	(75.3)
Inspect toilets for cleanliness	59	(66.3)
Inspect canteens for cleanliness and quality of food	58	(65.2)
Total respondents	89	(100.0)

DISCUSSION

The common ailments detected in school children, both in type and order of frequency, were similar to those detected in other studies as well as those recorded by the MCH Division of the Ministry of Health.^{1,2,6} It was seen that except for dental caries, Indians suffered the highest amount of ill health — a finding similar to that of S.T. Chen.² This implies that there may be a need to consider the risk approach in School Health Services whereby in addition to the regular school health services certain high risk groups are given priority and additional follow-up and care. With the present manpower availability this may not be possible. It is therefore imperative that additional manpower be harnessed. Teachers may be the solution to the manpower shortage as they can be trained to carry out routine health appraisal leaving nurses and doctors more time for high risk students.

To those who are sceptical about the capabilities of teachers to carry out such a task the following facts are pointed out. Firstly, the ailments detected were obvious ones, that is, ailments that can be detected by anyone with a basic training in the school health service. Abnormalities of heart and lungs, which would require special skills to detect, were extremely uncommon.

Secondly, the teachers had performed extremely well in relation to doctors and nurses in detecting these ailments. This implies that teachers are capable of greater inputs into the school health service and must therefore be motivated to play a bigger role in the service.

The study revealed that teachers usually take about 10 minutes to examine a student and another 10 minutes to fill the school health card. A teacher with 40 students would therefore take about 800 minutes (13.3 hours) or roughly two days to carry out health appraisal of his/her class. It is felt that this task, so essential to the student's health and well-being, can be incorporated into the annual schedule of teachers. This would require motivation of teachers who are not committed to or convinced about their role in the school health service which might not be as difficult as envisaged as seen from the fact that the majority of teachers had expressed a willingness to perform the various tasks of the school health service.

Moreover, 84% of the teachers had also admitted that they had a role to play in the SHS while 50% had agreed that the SHS was a joint responsibility of the Ministries of Health and Education. It is repeated here that teachers are a valuable source of manpower for the SHS whose full potential has not been tapped and who if trained can alleviate the manpower deficit in the SHS and contribute positively towards the health of school children.

A question on the problem with filling the school health card had revealed that the main problem was in getting relevant data from parents. This problem was also encountered during the

study as most consent forms were returned without the required data on family and past history of illness. To rectify this situation a greater rapport between teachers and parents would have to be established. However this is outside the scope of this study and will not be discussed here.

The second problem with filling the school health card, mentioned by over half the teachers, was that there were too many details to fill. The validity of this complaint must be investigated further and if justified the relevance of the data on the school health card can be reviewed and the task of filling the school health weighed against more important tasks like health appraisal or health education of students. About a quarter of the teachers had also said that they were too busy with their duties and could not find time to fill the school health cards. This could imply either a reluctance to fill the card or substantiate the above complaint that the card took time to fill. This again should be investigated and due consideration given to the teachers' grouses. Such an action will result in winning more co-operation from teachers in the school health services.

It is also clarified here that this was just a pilot study and will be more meaningful or generalizable when the study is carried out for all the 49 schools sampled in Selangor state. Moreover, as mentioned earlier, Indians were over-represented in this study and this will be corrected when the remaining schools are studied. The findings of the pilot study indicate that continuation of the study would result not only in determining the common health problems in school children in Selangor but also in arriving at a solution for the

manpower required to detect such problems at an early stage and at no significantly increased cost to the health services. It is therefore strongly recommended that the study be continued in all the sampled schools in Selangor state as initially planned.

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