Whither school health services for lower primary schoolchildren in Soweto?

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Summary

Over 1 000 clinical examinations and screening procedures in Soweto lower primary schoolchildren revealed few significant health problems which had not previously been identified. Information from parents and teachers was of limited value. The study revealed that only a small percentage of children referred for further medical attention attended for investigation or treatment as advised. Most of the health problems found could well have been managed at a school-based primary care level. It would thus be desirable to modify and extend the role and functions of the school nurse. However, the effectiveness of so doing would depend on adequate training, the availability of personnel and the organisational structure of health care services.

Subjects and methods

Soweto is a black urban residential area approximately 15 km from Johannesburg.

Lower primary schools have pupils at four levels — Substandards A and B and Standards 1 and 2 — and 90% of them are between the ages of 6 years and 12 years. At the time of this study (1982-1984) the resources available to the school health service made it possible to inspect each Soweto school only at 2- to 3-year intervals with limited follow-up thereafter. A typical lower primary school, Moroka East, with an annual enrolment of approximately 900 Sowetan children, provided the base for this 3-year study. Three Soweto school nurses assessed the children in 1982, and further study was undertaken at the same school in 1983 and 1984 by the research team (two doctors, a nurse, a social worker, an audiologist and clerical assistants). The combined findings during this 3-year period were used to: (i) determine the frequency with which selected physical abnormalities were detected; (ii) test different methods of achieving optimal outcome from expended effort, e.g. parent/guardian and/or teacher identification of health problems; (iii) determine likely benefits from the detection of specific abnormalities, e.g. compliance with referral advice; and (iv) assess the future role of Soweto school nurses.

Problems perceived and reported by parents and teachers

A letter with reply form to be taken home was given to each of the 873 pupils registered at the school in 1983. It was requested that any problem with the health or school progress of the child be recorded. It was also explained that the children would be physically examined and advice offered if necessary. Similar information was sought from all class teachers. Each child with a reported problem was examined independently of and without reference to any routine assessment. A method of selecting children in whom clinical examinations would prove most productive was therefore studied.

Clinical examinations

In 1982 the school nurses examined all 940 of the children present at the school. During 1983 and 1984 the research team doctors routinely examined 584 children in Substandards A and B. Four hundred and nine children referred by parents/guardians and 77 referred by teachers were also examined, resulting in a total of 1 070 assessments on 771 children. Parents were not present during the clinical examinations, and it was not possible to examine the children immediately on receipt of reply forms from parents. This resulted in difficulty in assessing problems such as headaches and tiredness, as well as missing out on some transient or intermittent conditions such as sore throats and coughs. Repeated clinical assessments on any individual child were separated by weeks or months.

In reporting abnormalities, the incidence of static conditions (e.g. hernias, squints) is related to the total number of children examined, and the prevalence of transitory conditions, such as throat and skin infections, is calculated from the total number of separate examinations.

The working environment for clinical examinations was a vacant classroom with no special facilities. An average of about 5 minutes was spent on each physical assessment with hearing and vision tested separately. Particular attention was focused on these tests.
since adequate vision and hearing are prerequisites for coping in the ordinary classroom situation. Eye and ear complaints were also used as a measure of the value of problem reporting by parents and teachers.

An audiometrist tested hearing in each ear separately using a portable Amplaid 151 audiometer. Visual acuity was tested in each eye separately with the other eye occluded by a patch. A Snellen chart was used at a distance of 6 m, and where children had difficulty in naming letters, they pointed to these on a Sheridan Gardiner chart.

Children with distant vision in either or both eyes of 6/12 or less, and/or near vision of N 12 or less were given referral letters to the single local ophthalmology service.

In 1981 and 1983 anthropometric data on children at this school were collected by a team from the National Research Institute for Nutritional Diseases of the South African Medical Research Council. The study team had access to class records and end-of-year results. In 1984 an associated but separate study of dental status was undertaken.

Results

The problems reported by both parents and teachers (Table I) reflect functional difficulties interfering with education, e.g. 'learning problems', as well as ill-health, e.g. upper respiratory tract and skin infections.

Of 409 parents who responded to the letters sent, only 11 recorded no complaints but requested that their children should be 'checked'. It might be speculated that the 53% of parent/guardian non-responders had fewer problems with their children, but this was not investigated.

It is interesting that parents perceived nearly twice as many children as having learning problems, e.g. poor concentration, than did teachers. None of these children was identified by both parent and teacher. Only 11 (17%) of the 64 children reported to have learning problems had not failed at the school.

The overall failure rate in Moroka East school was 10% in both 1982 and 1983, but had been 16% in 1981. Among parent-identified cases of learning difficulty failure occurred in 79% and among teacher-identified cases in 91%.

Parents reported 8 children to be on treatment for fits, and teachers noted only 2 of these. This might indicate good control of epilepsy or poor communication. Thirty-three children were referred by both parent and teacher. The same complaint, e.g. bad eyes, cough, sleepiness and headaches, was recorded in 10 children, none of whom was found to have specific or serious illnesses at the time of examination.

The frequency with which selected clinical abnormalities were found is shown in Table II.

While possible surgical intervention was considered in 5% of the children examined, less than 1% had conditions other than persisting umbilical hernias. The great majority (80-85%) of problems could have been dealt with at a primary care level.

*Problems were reported in a total of 409 children.
†Problems were reported in a total of 77 children.
‡Eight of these children had poor attendance records.

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### TABLE I. BROAD CLASSIFICATION OF PROBLEMS REPORTED

<table>
<thead>
<tr>
<th>Problem Category</th>
<th>Reported by parents/guardians*</th>
<th>Reported by teachers†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of problems</td>
<td>% of total problems</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>114</td>
<td>21,1</td>
</tr>
<tr>
<td>Headache</td>
<td>62</td>
<td>6</td>
</tr>
<tr>
<td>Learning problems</td>
<td>42</td>
<td>2</td>
</tr>
<tr>
<td>Fits (being treated)</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Eyes</td>
<td>56</td>
<td>10,4</td>
</tr>
<tr>
<td>Ears</td>
<td>42</td>
<td>7,8</td>
</tr>
<tr>
<td>Upper and lower respiratory tract symptoms/illness</td>
<td>179</td>
<td>33,2</td>
</tr>
<tr>
<td>Gastro-intestinal complaints</td>
<td>54</td>
<td>10,0</td>
</tr>
<tr>
<td>(including poor appetite)</td>
<td>25</td>
<td>4,6</td>
</tr>
<tr>
<td>Skin problems (rashes/sores)</td>
<td>5</td>
<td>0,9</td>
</tr>
<tr>
<td>Tuberculosis (being treated)</td>
<td>17</td>
<td>3,1</td>
</tr>
<tr>
<td>Tootache</td>
<td>48</td>
<td>8,9</td>
</tr>
<tr>
<td>Other</td>
<td>540</td>
<td>100,0</td>
</tr>
</tbody>
</table>

*Problems were reported in a total of 409 children.
†Problems were reported in a total of 77 children.
‡Eight of these children had poor attendance records.

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### TABLE II. CLINICAL FINDINGS

<table>
<thead>
<tr>
<th>Condition</th>
<th>Incidence of conditions detected (%)</th>
<th>By study team (in 1070 investigations)*</th>
<th>By school nurses (in 940 children)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Umbilical hernias &gt; 2 cm</td>
<td>5,1</td>
<td>5,3</td>
<td></td>
</tr>
<tr>
<td>Other surgical hernias</td>
<td>0,6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inguinal hernias, undescended testes, hypospadias</td>
<td>0,6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tonsils enlarged/infected</td>
<td>7,2</td>
<td>2,6</td>
<td></td>
</tr>
<tr>
<td>Skin conditions</td>
<td>15,5</td>
<td>3,4</td>
<td></td>
</tr>
<tr>
<td>Scabies</td>
<td>0,5</td>
<td>0,4</td>
<td></td>
</tr>
<tr>
<td>Impetigo</td>
<td>6,0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fungal</td>
<td>1,9</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td>Other, e.g. old burn scars, insect bites</td>
<td>7,1</td>
<td>1,5</td>
<td></td>
</tr>
<tr>
<td>Unsatisfactory hygiene</td>
<td>15,0</td>
<td>21,6</td>
<td></td>
</tr>
</tbody>
</table>

*A total of 771 children were investigated.
The complaint of ‘bad eyes’ or ‘bad ears’ was usually unspecified and might have applied to presumed functional defects or other causes. Together these complaints constituted 17% of both parents’ and teachers’ reported problems.

Allergic conjunctivitis was the commonest eye problem, and obviously apparent to both parents and teachers. Apart from this, teachers were not helpful in identifying eye or ear problems. Squints were found in 1% of all children examined.

Of the 42 children referred by parents for ear problems, 8 (21%) showed evidence of previous or present disease. However, after examination it was decided to refer only 3 for treatment. A foreign body was removed from one ear. This is a measure of the limitations of an occasional non-therapeutic service. Routine audiometric screening identified the most hearing defects. Of the 340 children tested, 13.2% were found to have defects, half of which were unilateral and few significant. Follow-up and further investigation of all such cases would add a considerable load to an already overburdened service.

**Outcome of referrals**

The school nurses wrote 107 letters referring children for treatment (12%). Dental problems constituted 60% of the defects they recorded. Records were available for 92 children given treatment referral letters by the school nurses. Six weeks after referral 35 (38%) had been treated, 34 (37%) had not been treated and the remaining 23 pupils (25%) were absent.

The study team referred 52 children to the ophthalmology service, and 12 (23%) were found to have attended. Even when eye problems were recognised and reported by parents and/or teachers and confirmed on examination, compliance with referral was less than 30%.

Only 2 of the 39 persisting umbilical hernias were known to have been repaired within 2 years after the survey, probably reflecting a justifiably low level of community concern about this common condition.

**Nutritional status**

In 1981 and 1983 approximately 25% of the study school’s pupils had weights for age between 60% and 80% of the National Center for Health Statistics reference median. The age-related heights were proportionately reduced and therefore the fact that the children were undersized was not generally visually apparent.

A separate study revealed few significant correlations between these derived anthropometric parameters and school performance. Absenteeism was recorded with equal frequency in undersized and better-nourished children. Thus reduced growth was not found to be associated with other possible indicators of school performance. However, this may have been masked by undetermined environmental, family and educational factors.

**Discussion**

School health services may be specifically directed at detecting and dealing with impediments to learning. They can, however, be expanded to encompass endeavours to promote the total well-being of pupils.

Eisner and Oglesby advocated teacher-nurse conferences as being useful for focusing attention on children with problems. Van Heerden records the view of Novak that teachers are the most important source of referral and advice, and the contrary opinion of Holloway that ‘the teacher is essentially a layman in matters medical and in matters which pertain to child health’. In this study neither parent nor teacher identification of suspected physical disorders proved particularly helpful.

There would be obvious advantages in having parents present during examination of their children. They could provide important information, and benefit from direct counselling and health education. However, at present the logistics of achieving this in Soweto, where many mothers work and school nurses already undertake a huge volume of work, are daunting.

Combining physical examinations and screening procedures maximises the identification of health problems. The value of so doing obviously depends on whether and in what manner such problems are resolved.

Few previously undetected major problems were found; this reflects the accessibility of health care in Soweto. It is, however, noteworthy that there was a higher incidence of hearing defects found on routine screening than in children stated to have ‘bad ears’. Dental disorders were the commonest problems and for these a free school dental service is provided. The elucidation of learning problems, while of obvious importance, received limited attention because of the paucity of facilities for further investigation and treatment.

Most of the other abnormalities found in the children at the school, as well as those reported by parents, could almost certainly have been dealt with by appropriately trained and equipped primary health care school nurses. The ability of primary health care nurses in Soweto to manage independently 80% of sick children attending clinics has been documented. Other aspects of the Soweto school health service, such as health education and environment control, have not been evaluated in this study but it is doubtful whether the current practice of clinical assessments at long intervals and subsequent limited intervention is adequate.

British school nurses are also involved in screening procedures and health education, and were described by Frick in 1985 as ‘a group who are just developing and finding their own identity’. US studies, such as those of White and Newman et al., describe wide roles for schools within the health team, with therapeutic and counselling functions complementing selected screening procedures. The effective liaison between these nurses and referral health care facilities reduced absenteeism and promoted compliance. The latter requires further attention in Soweto.

The Soweto school health service is currently hampered by the fragmentation of health care. Given adequate staff, training and facilities it has the potential to develop into a more comprehensive and cost-effective service with benefit for the wider community.

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**REFERENCES**