

Timeliness of care received by children with speech and language disorders attending a speech therapy clinic at a tertiary care hospital

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Abstract

Introduction: Speech and language therapy is an evolving field in the Sri Lankan health setting which enhances the quality of life of speech disabled children. However, timely identification and intervention is a key determinant in the success of speech therapy.

Objective: To assess the timeliness of care received by children with speech and language disorders attending the Speech and Language Therapy Clinic at the Lady Ridgeway Hospital for Children, Colombo.

Methods: A cross-sectional study design was used to collect data on timeliness of disease identification, care seeking and referral as well as the sources of identification, care seeking and referral. The time gaps between identification, care seeking and referral were calculated. Factors associated with timeliness of identification and the differences of time gap between various sub groups were analyzed.

Results: Mean ages of identification, care seeking and referral of speech/language disorder were 15.3, 18.3 and 24.3 months respectively. Female sex, higher maternal education, being an extended family, positive family history and having an associated condition were significantly associated with earlier age of identification. The Medical Officer of Health team was involved in identification of only 11 (4.3%) children, despite the frequent encounters.

The time gap between identification and care seeking was more than 3 months in 102 (40%) subjects. Multilingual family and having an employed mother were significantly associated with lesser time gap. The time gap between seeking of care and referral for speech therapy was more than 3 months in 96 (41.6%). Most (57.1%) parents had sought care from

a doctor or other health worker in the primary health care setting. However, 236 (92.5%) of referrals were by a child specialist within or outside Lady Ridgeway Hospital. Altogether 79.6% of the study sample was referred for speech therapy before the age of 3 years.

Conclusions: Current timeliness of disease identification and age of intervention is satisfactory but there is room for improvement with regard to the valuable time lost between identification to care seeking and referral.

(Key words: Speech and language therapy; children; timeliness)

Introduction

To communicate effectively, children must master language, i.e. the conventional code used to convey thoughts and ideas, and speech, the complex and rapid motor movements that translate such ideas into spoken words¹. Globally, approximately 6% of children have speech and language difficulties². Local studies have reported a 3-8% burden of communication problems in children^{3,4}.

Speech/language disorder is one of the disabilities where effective interventions are available, if diagnosed and intervened timely, especially in children^{5,6}. Early intervention for communication delays is defined as "Intervention in the form of assessment and/or treatment provided to families and their children below the age of three years, who demonstrate, or are at-risk for demonstrating, either a disability or delay involving communication"^{7,8}. Early identification and intervention have been shown to be associated with better long-term outcomes and to assist in educational planning^{5,6,9}.

Age at care seeking, as well as age of referral could be markedly different from age at identification^{10,11}. However, many children with clinically identifiable developmental problems present late for medical help due to low rate of early recognition¹². Further, there is no proper pathway of referral identified. Consequently, there is an identification and communication gap which leads to late diagnosis and referral¹³.

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In 1998, a 2 year diploma course was started in Sri Lanka to produce university educated speech and language therapists (SLTs) through collaboration between Sri Lankan and British academics and the Sri Lankan Ministry of Health¹⁴. The first set of graduates were absorbed into the government health care system in 2000 after which speech and language therapy clinics were started in major hospitals. In 2008, the diploma course was upgraded to a 4-year degree programme. Currently, there are about 65 SLTs working in Sri Lanka in various medical and non medical settings. However, more than two thirds of SLTs from all sectors are either working in Colombo or the suburbs^{15,16}.

Currently there is no proper community screening programme for detection of speech disordered children. The Speech and Language Therapy Clinic at the Lady Ridgeway Hospital for Children (LRH), Colombo, is a national referral centre catering exclusively for children with speech disorders coming from all over Sri Lanka.

Objective

To assess the timeliness of care received by children with speech and language disorders attending the Speech and Language Therapy Clinic at LRH.

Method

A descriptive cross-sectional study design was used. All child-caretaker pairs attending the speech therapy clinic at LRH from 16th August 2010 to 15th of September 2010 on all days that the clinic was conducted were included in the study. They were identified by using the clinic attendance register. Two study instruments were used for data collection. One was an interviewer administered questionnaire which was administered to the child-caretaker pairs and the other was a data extraction form which was filled by the data collectors using the clinic records of the same patient. Questionnaire was prepared after reviewing the literature, and with the support of local experts on the subject including speech therapists, senior lecturer in speech therapy, ENT surgeon and a child psychiatrist. The content was planned according to the objectives and pre testing was done.

Prior to analysis appropriate frequency distributions and cross tabulates were made to match the

objectives. Data were processed and analyzed using SPSS software (17th version). The percentages were calculated for the descriptive elements and the means and the difference between the means with confidence intervals and p values were assessed for the analytic components. The level of significance was taken as $p < 0.05$. Ethical approval was obtained from the Ethics Review Committee of LRH.

Results

Questionnaires were administered to 265 subjects and the response rate was 96.2%. Out of the 255 respondents, 197 (77.3%) were mothers and the rest were fathers as it was compulsory for a parent to be present at the therapy session. Of all study subjects, 157 (61.6%) were boys and 98 (38.4%) were girls. The ages at initial identification of speech/language disorders is shown in table 1.

Table 1
Ages at initial identification of speech /language disorders

Age at initial identification (months)	Frequency (%)
<12	109 (42.7)
13-24	79 (31.0)
25-36	44 (17.3)
37-48	17 (06.7)
49-60	04 (01.6)
61-72	0 (0)
73-84	0 (0)
85-96	0 (0)
97-108	02 (0.8)
Total	255

The mean age at identification was 15.3 (SD13.3) months. In 43% the speech/ language disorder was identified in infancy and by 3 years 91% were identified to have some sort of a speech disability (table 1).

The differences between mean ages of initial identification in selected groups are shown in table 2

Table 2
Differences between mean ages of initial identification in selected groups

Compared groups	Difference of mean ages (months)	CI for the difference	Significance
Male / Female	5.03	2.01 - 8.06	P=0.001
Birth order= 1 / Birth order >1	-2.72	(-5.98) - 0.55	P=0.100
Unilingual Families / Bi/trilingual families	-2.41	(-7.04) - 2.21	P=0.306
Social class 1&11 / Social class 111,1V,V	0.09	(-3.2) -3.4	P=0.955
Father's educational level <O/L / Passed O/L or above	2.21	(-1.94) – 6.36	P=0.295
Mother's educational level<O/L / Passed O/L or above	5.43	1.14 – 9.71	P=0.013
Family history negative / Family history positive	7.10	1.16 – 13.04	P=0.020
Nuclear family / Extended family	8.74	5.64 -11.83	P=0.000
Associated condition + / Associated condition -	-12.69	-8.09-(-17.29)	P=0.000
Milestones marked in CHDR / Never marked	-0.36	(-3.5) – 2.8	P=0.824

The distribution of the sources of initial identification is shown in table 3.

Table 3
Sources of initial identification

Source	Frequency (%)
Father	25 (09.8)
Mother	81 (31.8)
Relative/friend	09 (03.5)
Teacher	06 (02.4)
General Practitioner	04 (01.6)
Medical Officer of Health	04 (01.6)
Public Health Midwife /Public Health Nurse	07 (02.7)
Doctor / Hospital Staff while on treatment for something else	119 (46.7)
Total	255 (100)

The commonest source of initial identification of speech/language disturbance was a doctor or other member of hospital staff while on treatment for some other condition (47%). However, parents have identified the condition initially in 42% of children. The Medical Officer of Health (MOH) or other members of the MOH team were involved in initial identification only in 4% of children.

The age distribution of children seeking formal medical care for speech/language disorder is shown in table 4.

Table 4
Age distribution of children seeking formal medical care for speech /language disorder for first time

Age at care seeking (months)	Frequency (%)
<12	77 (30.2)
13-24	99 (38.8)
25-36	51 (20.0)
37-48	19 (07.5)
49-60	07 (02.7)
61-72	0 (0.0)
73-84	0 (0.0)
85-96	0 (0.0)
97-108	02 (0.8)
109-120	0 (0.0)
>120	0 (0.0)
Total	255 (100)

The mean age of children at care seeking was 18.3 (SD=13.3) months. In 89% of the study subjects parents have sought care or were directed to seek care before the completion of 3 years.

The sources where parents first sought formal medical care for speech/language disorders is shown in table 5.

Table 5
Sources where parents first sought formal medical care for speech/ language disorders

Source	Frequency (%)
General practitioner	37 (14.5)
Hospital / Gov. dispensary OPD	105 (41.2)
Paediatrician	47 (18.4)
ENT Surgeon	04 (01.6)
Child psychiatrist	05 (02.0)
Speech therapist	0 (0.0)
MOH team	04 (01.6)
Not sought care on your own but referred by somebody	53 (20.8)
Total	255 (100)

Many (41%) parents have sought care for speech / language disorder from a medical officer in a government hospital or a dispensary. Paediatricians (18%) and General Practitioners (14.5%) were the

other common sources of care seeking. The time gap between initial identification and seeking of formal medical care is shown in table 6.

Table 6
Time gap between initial identification and seeking of formal medical care

Time gap	Frequency (%)
<1 month	63 (24.7)
1 -3 months	90 (35.3)
4-6 months	41 (16.1)
7-9 months	44 (17.3)
10-12 months	03 (1.2)
>12 months	14 (5.5)
Total	255 (100)

The mean time gap was 3.0 (SD 3.3) months. The time gap was more than 3 months in 40% and more than 12 months in 5.5% of the study subjects.

The differences between the mean time gap of initial identification to seeking formal medical care for speech/language disorders in selected groups is shown in table 7.

Table 7
Differences between the mean time gaps of initial identification to seeking formal medical care for speech / language disorders in selected groups

Compared groups	Difference of means (months)	CI for the difference	Significance
Male / Female	-0.2321	(-1.0599) – 0.5958	P=0.581
Birth order= 1 / Birth order >1	0.5855	(-0.2253) – 1.3963	P=0.152
Unilingual Families / Bi/tri lingual families	1.4525	0.7424 – 2.1625	P=0.000
Social class I & II / Social class III, IV, V	0.0530	(-0.7673) – 0.8733	P=0.894
Father's educational level <O/L / Passed O/L or above	-0.3551	(-1.1486) – 0.4383	P=0.377
Mother's educational level <O/L / Passed O/L or above	-0.3008	(-1.3571) – 0.7555	P=0.561
Family history positive / Family history negative	-0.5621	(-1.582) – 0.458	P=2.79
Nuclear family / Extended family	1.3447	0.5603 – 2.1291	P=0.001
Associated condition + / Associated condition -	0.8869	(-0.2933) – 2.06	P=0.140
Mothers employed / Not employed	1.7858	1.0627 – 2.5089	P=0.000

Distribution of ages at referral for speech therapy of children with speech / language disorders is shown in table 8.

Table 8

Distribution of the ages at referral for speech therapy of children with speech / language disorders

Age at referral (months)	Frequency (%)
<12	66 (25.9)
13-24	80 (31.4)
25-36	57 (22.4)
37-48	27 (10.6)
49-60	08 (03.1)
61-72	08 (03.1)
73-84	02 (0.8)
85-96	05 (2.0)
97-108	0 (0.0)
109-120	02 (0.8)
>120	0 0 (0.0)
Total	255 (100)

Mean age of children at referral was 24.3 (SD 19.6) months. Even though 42.7% of children were identified to have a speech disability within the first year of life only 25.9% have been referred within the first year. However 203 (79.6%) children were referred before completion of 3 years.

Distribution of the source of referral of children with speech and language disorders for speech therapy is shown in table 9.

Table 9

Distribution of source of referral of children with speech / language disorders for speech therapy

Source of referral	Frequency (%) (N= 255)
MO/OPD (LRH) –via VP/OPD	13 (05.1)
GP –via VP/OPD	02 (0.8)
MOH team –via VP/OPD	04 (01.6)
Paediatrician (LRH)	26 (10.2)
Paediatrician (other hospital)	13 (05.1)
ENT Surgeon (LRH)	24 (09.4)
ENT Surgeon (other hospital)	20 (07.8)
Paediatric Surgeon (LRH)	03 (01.2)
Plastic Surgeon (LRH)	64 (25.1)
Child psychiatrist (LRH)	15 (05.9)
Child psychiatrist (other hospital)	03 (01.2)
Rheumatologist (LRH)	68 (26.7)

The time gap between age at seeking formal medical care and age at referral for speech therapy clinic at LRH is shown in table 10.

Table10

Time gap between age at seeking formal medical care and age at referral for speech therapy clinic at LRH

Time gap	Number (%)
<1 month	81 (31.8)
1 -3 months	68 (26.7)
4-6 months	41 (16.1)
7-9 months	22 (8.6)
10-12 months	08 (3.1)
>12 months	35 (13.7)
Total	255 (100)

The mean time gap was 5.9 months. The time gap between age at seeking of formal medical care and age at referral was more than 3 months in 41.6% of children.

The time gap between age at initial identification of speech/language disorders and age at referral is shown in table 11.

Table 11

Time gap between age at initial identification of speech / language disorders and age at referral

Time gap	Number (%)
<1 month	27 (10.6)
1 -3 months	59 (23.1)
4-6 months	47 (18.4)
7-9 months	40 (15.7)
10-12 months	17 (06.7)
>12 months	65 (25.5)
Total	255 (100)

The mean time gap was 8.9 months. Time gap between age at initial identification and age at referral was more than 3 months in 66.3% of children and more than 12 months in 25.5% of children.

Discussion

The male: female ratio of the study sample was 1.6: 1.0 which is consistent with studies done locally and internationally^{3,5,17-19}. Ascertainment bias due to over diagnosis and higher reporting in boys was examined by Choudhry et al and persistence of gender differences was shown with measures taken to minimize such bias²⁰.

Early identification is important for early intervention. The mean age of initial identification was 15.3 months, in 43% identification being made before 12 months, and in 91% before 3 years of age. When compared with other clinic based studies^{10-12,19},

these values are encouraging. In our study higher maternal educational level was significantly associated with earlier identification ($p < 0.05$). Higher maternal education level leading to better child development has been consistently seen in many studies^{5,17}. Having a positive family history ($p < 0.05$), being an extended family ($p < 0.001$), having an associated condition ($p < 0.001$) and being a girl ($p = 0.001$) were also significantly associated with an earlier age of identification in our study.

The main source of identification in our study was a doctor or another health care worker while in the hospital for some other condition (47%). However, 42% of children's speech or language problem was identified by one or other parent. The MOH team was involved in identification only in 4.3% of children, which, however, is an improvement when compared with previous studies¹⁹.

Earlier age of identification does not necessarily mean that care was sought for these children at an early age as shown in many studies both here and abroad¹⁰⁻¹². The mean age of care seeking in this study group was 18.3 months. The mean time gap between identification and care seeking was 3.0 months. Time gap was more than 3 months for 40% of the children studied and in 5.5% of children it was more than 12 months. This time gap could depend on the child as well as family characteristics. A significantly lesser time gap was seen in multilingual families when compared with mono lingual ($p < 0.001$), probably because deep rooted concerns that multilingualism can cause speech/language problems made such parents seek care earlier.

Other factors significantly associated with lesser time gap were being an extended family ($p = 0.001$) and having an employed mother ($p < 0.001$). Birth order of > 1 or positive family history failed to record any significant lessening of the time gap. Most parents (57.1%) have sought care from a doctor or other health worker in the primary health care setting, consistent with a previous study done on children with developmental problems¹⁹.

When considering the ages of referral, 80% of the study sample were referred for speech therapy before the age of 3 years which is "early referral" according to the available standards^{5,7}. The mean age of referral to speech and language therapy clinic was 24.2 months. However on analyzing the time gap between age of care seeking and referral, the mean gap was 5.9 months, whereas the gap was more than 3 months in 41.6% of children. The mean gap between initial identification and referral was 8.9 months and the gap

was more than 3 months in 66% of children. This is probably a result of multiple points of contact before being referred as shown in previous studies too¹⁹. Even though the parents have sought care primarily from a primary health care worker the referrals show a different pattern with 93% of referrals being done by a child specialist within or outside LRH. These are indications of relative unawareness of health care workers of speech therapy and its importance.

Conclusions and recommendations

- The current timeliness of disease identification is encouraging with a mean of 15 months but there is room for improvement with regard to the ages of identification especially in the otherwise healthy children.
- Awareness programmes should be carried out for primary health care workers (Medical Officers/ Outpatient Department, General Practitioners, MOH) on the availability of facilities and need for timely referral.
- Every effort should be taken to preserve the traditional extended family system for its known positive effects on child development.

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