



Prevalence of speech and language impairment in 4,983 four- to five-year-old Australian children

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Knowing the prevalence of children with communication impairment assists with planning of appropriate services and demonstration of the impact of intervention. Prevalence is the "proportion or percentage of cases in a given population at a specified time" within a "normal rather than clinical population" (Law, Boyle, Harris, Harkness, & Nye, 2000, p. 166). Law et al. (2000) conducted a systematic review of the prevalence of children with speech and language impairment. The prevalence of speech impairment was between 2.3-24.6%, language impairment was between 2.02-19% and speech and language impairment was 1.35-8%.

The majority of Australian prevalence data regarding children with communication impairments relates to the school-aged child. Each study has used different data collection techniques and definitions:

- McLeod and McKinnon (2007) reported that 13.0% of 14,514 primary and high school-aged children were identified by their teachers as having a communication impairment. Prevalence of communication impairment was higher than the combination of prevalence figures for behaviour difficulties, intellectual impairment, hearing impairment, and visual impairment.
- Harasty and Reed (1994) assessed speech and language of 437 children in Kindergarten (K) to year 6 and found 15.3% had articulation/phonological impairment and 20.6% had language impairment.
- Kirpatrick and Ward (1984) directly assessed speech sound production of 2,251 school children from K to year 6 determined that 4.6% had "articulation errors".
- Keating, Turrell and Ozanne (2001) reported parent identification of children who had "difficulty talking, producing speech sounds, or who stuttered". They reported that 1.3% of the 12,388 children aged 0-14 years had communication difficulties. The peak prevalence for males occurred at age 5 (6.5%), and for females at 3- to 4-years (1.8%).
- McKinnon, McLeod and Reilly (2007) reported teacher identification of prevalence of speech-sound disorders in 10,425 primary school-aged children as 1.06%, with a peak of 2.5% in Kindergarten. Differing methodologies result in different measures of prevalence. Differences may occur according to the age of participants, data collection techniques (direct assessment versus parent and teacher report), the definition of communication impairment, and whether studies considered sub-groupings such as speech versus language. For example, higher prevalence of speech impairment was reported for younger ages (e.g., 15.6% of 3-year-olds, Campbell et al., 2003), compared to older children (e.g., 3.8% of 6-year-olds, Shriberg, Tomblin & McSweeney, 1999).

The aim of the present study was to report Australian data on the prevalence of speech and language impairment in the early childhood years using parent and teacher report.

Method

Participants

Data were from the first wave of the *Longitudinal Study of Australian Children* (LSAC) (Sansón et al., 2002) which is based on a nationally representative sample of 5,000 4- to 5-year-old child and 5,000 infants (aged 3-19 months). The recruitment process ensured that the numbers of children in each of the states and territories of Australia, and within and outside of each their respective capital cities, were proportional to the total numbers of children resident in these areas (Gray & Sansón, 2006). The present paper focuses on the children aged 4-5 years.

A total of 4,983 children (2,537 boys; 2,446 girls) and their parents participated in the study. Children ranged in age from 4 years 3 months (4;3) to 5 years 7 months (5;3) and boys and girls did not differ by age. The families that these children lived in were a close match to the Australian population of families in relation to parents' ethnicity, country of birth, education and income, family size and structure, and whether the mother spoke a language other than English at home. The number of teachers who agreed to participate in the study was 3,276.

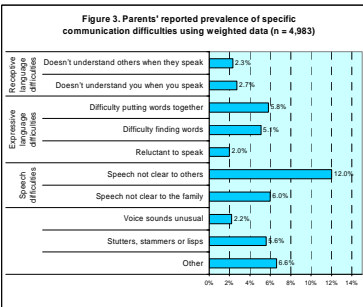
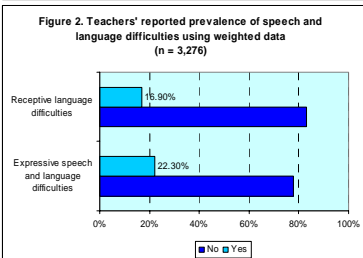
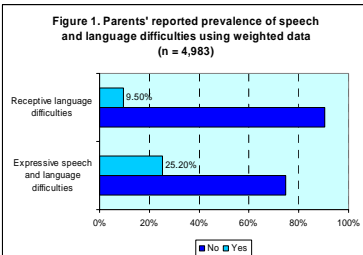
Data collection

The LSAC data collection schedule consisted of a 2-hour visit in the child's home. Interviews were held with the parent who knew the child best (in 97% of cases this was the biological mother). This parent and the other resident parent were asked to complete separate questionnaires. If the child was attending school or preschool/childcare, the parent was asked to provide the address so that a questionnaire could be sent to the teacher. Each of these sources of data were drawn on in the present study to identify the prevalence of communication impairment across the child sample.

Data analysis

The LSAC data were weighted using information from the Australian Bureau of Statistics (ABS) for the "ABS estimated resident population of children aged ... 4 years." (Soloff et al., 2006; p. 19).

Results and discussion



Parents' reported prevalence of children with speech and language impairment

Overall, 25.2% of parents indicated that they had concerns ("a little" (13.4%) or "yes" (11.8%)), about how their child talked and made speech sounds and 9.5% had concerns ("a little" (5.1%) or "yes" (4.4%)), or about how their child understood what was said to him/her (see Figure 1). More boys than girls were identified as having difficulty. Boys constituted 64.4% of the group of children identified as having difficulty talking and making speech sounds, whereas boys constituted only 46.8% of the group of children not identified as having these difficulties. Similarly, boys constituted 64.5% of the group of children identified as having difficulty understanding what was said, whereas boys constituted only 49.8% of the group of children not identified as having these difficulties.

Teachers' reported prevalence of children with speech and language impairment

Overall, 22.3% of the teachers indicated that they had concerns (the child was "less competent" (15.6%) or "much less competent" (6.7%)) about expressive speech and language and 16.9% had concerns (the child was "less competent" (12.9%) or "much less competent" (4.0%)) about receptive language ability (see Figure 2).

Correspondence between parent and teacher report

Expressive speech and language: Crosstabulations were conducted between parents' responses to the question "Do you have concerns about how your child talks and makes speech sounds", and teachers' responses to the question "Expressive language skills (e.g., using language effectively, ability to communicate ideas)" (see Figures 1 and 2). Weighted population data were used for the crosstabulations. There was a highly significant relationship between parent and teacher report of speech and language production ($\chi^2(6, 162,889) = 30,068.5$). That is, as the teachers rated the children as less competent, parents rated children as having more difficulties. For example 86.9% of children who were identified by their teachers as more competent than others in "expressive language skills" were identified by their parents as having no difficulties "talking and making speech sounds".

Receptive language: Crosstabulations were conducted between parents' responses to the question "Do you have concerns about how child understands what you say to him/her?", and teachers' responses to the question "Receptive language skills (e.g., understanding, interpreting and listening)" (see Figures 1 and 2). Weighted population data were used. There was a highly significant relationship between parent and teacher report of speech and language production ($\chi^2(6, 162,973) = 20,241.3$). That is, as the teachers rated the children as less competent, parents rated children as having more difficulties. For example 96.3% of children who were identified by their teachers as more competent than others in "receptive language skills" were identified by their parents as having no difficulties "understanding".

Parents' reported prevalence of subtypes of communication impairments

The parents were asked to indicate whether their child exhibited different subtypes of communication impairments by answering ten questions. Figure 3 provides the questions, the subtype of communication impairment and the parental responses. The most prevalent subtype was speech impairment: "Speech not clear to others" (12.0%) and "Speech not clear to the family" (6.0%). Most of the children (14.3% of 4,938) were identified positively for one question relating to subtypes of communication impairment and a further 6.4% for two questions. However, two children were identified as having nine questions answered positively. There were 170 different combinations of responses to the questions about subtypes of communication impairment. The highest correspondence was between "speech not clear to others" and "speech not clear to the family".

Incidence of the use of speech-language pathology services

Parents indicated that in the previous year 10.5% of children had accessed speech-language pathology services and a further 2.2% of the children needed but could not access speech-language pathology services. Teachers indicated that speech-language pathology was accessed by 5.8% of the children at the child-care centre, and this service was accessed more than any other service (learning support (3.9%), psychological assessment (0.7%), and behaviour management (1.3%)). When overlapping incidence data were excluded, 13.8% of children were identified as receiving speech-language pathology services (either organized by their parents, the childcare centre or both) and at least a further 2.2% of children needed but could not access speech-language pathology services.

Summary

A large proportion (up to one quarter) of 4- to 5-year-old Australian children were identified by their parents and/or teachers as having speech and/or language difficulties, with "speech not clear to others" being the most prevalent area of concern. Boys were at risk for being identified as having a speech and/or language impairment. Approximately 16% of children accessed or wanted to access speech-language pathology services in the previous year. Health and education interventions are necessary to reduce the impact of these difficulties on these children's subsequent socialisation and academic endeavours (Lewis et al., 2000).

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