**COMMUNICATION IMPAIRMENT IN AUSTRALIAN CHILDREN**

A review of recent prevalence studies

Jane McCormack

---

Information regarding the prevalence of communication disorders is important for planning and evaluating service delivery. Many studies have investigated the prevalence of communication disorders in Australia and throughout the world, with varying results. This article reviewed the most recent Australian research investigating prevalence rates in children, and found a range of estimates, from 0.12% (voice) to 20.8% (expressive language). Results varied according to the communication disorders being investigated, definition of disorders, mode of identification, age and number of participants.

**Keywords:**
Australia, children, communication impairment, prevalence

The impact of communication disorders on the affected individual and significant others has been universally acknowledged. However, the impact at a population level is now receiving greater recognition. People are increasingly expected to be proficient communicators in employment and social activities. Therefore, as Byles (2005) pointed out, the impact of communication disorders will continue to grow and services will need to be more readily available and better equipped to address this. Law, Boyle, Harris, Harkness and Nye (2000) suggest prevalence data are important to enable the planning of service delivery and the evaluation of the impact of intervention. Prevalence refers to “the proportion of people in a defined population who have a particular condition at any one time” (Byles, 2005, p. 2).

Many studies have been conducted that investigated the prevalence of communication disorders in Australia and internationally. Law et al. (2000) provided a systematic review of the prevalence and natural history literature published between 1967 and May 1997. This review covered studies investigating “speech and language delays in children aged 16 years and younger in a general population” (p. 167) and found wide variation in reported rates. Median estimates of prevalence ranged from 2.02% to 19% for language delay only, and from 2.3% to 24.6% for speech delay only, while estimates of prevalence for speech and/or language delay ranged from 4.56% to 19% (Law et al., 2000). McCabe (2001) found similar variance in prevalence rates when she reviewed the literature in an attempt to answer the question “How many Australians have communication disorders?” She proposed that prevalence should be considered as occurring within a range (4%–33%), rather than a specific figure, due to the diversity of figures reported in the reviewed studies. However, the value of this information to assist service-delivery planning may be lessened by the lack of specificity.

Blum-Harasty and Rosenthal (1992) reviewed studies investigating prevalence and concluded that comparisons between studies are difficult due to differences in study design. Therefore, issues of study design need to be considered in further reviews of prevalence literature. This article provides a review of the most recent Australian research into the prevalence of childhood communication impairments in this country. The results vary from one study to the next (see Table 1). They are outlined in the following sections and differences are discussed in terms of the influence of a number of variables.

**Table 1** Australian studies of prevalence of communication disorders published since 2000

<table>
<thead>
<tr>
<th>Authors, year</th>
<th>Classification</th>
<th>Prevalence</th>
<th>Age</th>
<th>Study design</th>
<th>No. of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craig et al., 2002</td>
<td>Stuttering</td>
<td>0.72%; 1.44% for males aged 6-10 yrs</td>
<td>1–99 years</td>
<td>Telephone interview and tape-recording</td>
<td>12,131</td>
</tr>
<tr>
<td>Keating, Turrell &amp; Ozanne, 2001</td>
<td>Talking, producing sounds, stuttering</td>
<td>1.7%; 7.4% for males aged 5 yrs</td>
<td>0–14 years</td>
<td>Parent report in face-to-face interview</td>
<td>12,388</td>
</tr>
<tr>
<td>McKinnon, McLeod &amp; Reilly, 2007</td>
<td>Stuttering, voice and speech</td>
<td>0.33% stuttering, 0.12% voice, 1.06% speech</td>
<td>Kinder – Gr 6</td>
<td>Teacher report</td>
<td>10,425</td>
</tr>
<tr>
<td>McLeod &amp; Harrison, 2006</td>
<td>Communication impairment</td>
<td>Approx 20%</td>
<td>4–5 years</td>
<td>Parent report</td>
<td>4,983</td>
</tr>
<tr>
<td>McLeod &amp; Harrison, 2006</td>
<td>Communication impairment</td>
<td>20.8% expressive language, 15.7% receptive language</td>
<td>4–5 years</td>
<td>Teacher report</td>
<td>3,276</td>
</tr>
<tr>
<td>McLeod &amp; McKinnon, 2007</td>
<td>Communication disorders</td>
<td>13.04% (wave 1); 12.40% (wave 2)</td>
<td>5–18 years</td>
<td>Teacher report</td>
<td>14,514 (wave 1); 14,533 (wave 2)</td>
</tr>
</tbody>
</table>
Prevalence research: 2002–2007

Mode of identification

McLeod and Harrison (2006) analysed data from the Longitudinal Study of Australian Children (LSAC) project, which investigated a range of developmental issues in children aged between 4 and 5 years old (n = 4983). This project aims to examine the development and well-being of children in Australia and the impact of a range of social and cultural factors (Australian Institute of Family Studies, 2007). Data were obtained via parent interviews and teacher questionnaires. Approximately 24.4% of parents reported concerns about how their child talked and made speech sounds. When parents were asked to identify specific subtypes of communication impairment, 11.5% reported that their child’s speech was unclear to others. Parents also expressed concerns regarding other aspects of communication (such as understanding others, putting words together and finding words); however, these responses were not as frequent. Additionally, 20.8% of teachers (n = 3276) had concerns about children’s competency with expressive language, while 15.8% had concerns about competency with receptive language.

Okalidou and Kampanaros (2001) reported similar findings (14.4–18.7%) for teacher identification of communication impairment in kindergarten children in Greece. In contrast, Tomblin, Records, Buckwalter, Zhang, Smith, and O’Brien (1997) estimated a prevalence rate of 7.4% for specific language impairment among kindergarten children in America. This latter study incorporated a comprehensive assessment battery administered by speech-language pathologists.

Blum-Harasty and Rosenthal (1992) reported that questionnaires completed by parents and teachers usually result in lower prevalence being reported when compared with standardised assessments completed by trained examiners. There is little information to date about the consistency of parent/teacher reports with assessment of communication difficulty by a speech pathologist. There is also little information regarding whose identification should be considered the most valid. Wake and Reilly (2001) suggest parents may be “ill-equipped” to identify “more subtle problems” (p. 422). Therefore, results obtained by McLeod and Harrison (2006) are particularly high considering the mode of identification was through parent and teacher report.

However, theirs is not the only study to achieve high results using parent/teacher report as a mode of identification. McLeod and McKinnon (2007) also obtained a high rate when they investigated the prevalence of communication disorders compared with other learning needs, as identified by teachers. Data were collected in two waves, two years apart. The participants were students at all Catholic primary and secondary schools in one Sydney diocese (n = 14,514 in wave 1 and n = 14,533 in wave 2). Teachers were provided with definitions of the various areas of learning need, including information about various subtypes of communication impairment, and asked to identify needs. Direct assessments of the children by relevant professionals including speech pathologists followed these teacher recommendations. McLeod and McKinnon (2007) found “communication disorder” was the second most prevalent identified area of need, with 13.04% of children identified in wave 1 and 12.40% of children identified in wave 2. This was second only to specific learning difficulty (17.93% –1; 19.10% – 2) as an area of “learning need,” and was more prevalent than English as a second language, behavioural/emotional difficulties, early achievers/advanced learners, physical/medical disabilities, intellectual disabilities, hearing and vision impairments. Therefore, variables other than mode of identification may influence results.

Age and number of participants

McLeod and McKinnon (2007) did not provide data regarding the different prevalence rates of specific subtypes of communication impairment. However, they did report differences in prevalence according to grade/year level. They found that the highest prevalence of communication disorders was among children in years K–3 in wave 1, but in years 1, 7, 8 and 10 in wave 2. Blum-Harasty and Rosenthal (1992) suggested that rates of prevalence for communication impairment decrease as age increases. However, Law et al. (2000) reported “there is little evidence to suggest declining prevalence across the 0–16 year age range” (p. 179) and this is supported by findings from McLeod and McKinnon (2007).

Blum-Harasty and Rosenthal (1992) stated that lower prevalence figures are usually reported in large samples (i.e., greater than 3000 participants), and possibly relate to mode of identification. Yet McLeod and McKinnon (2007) reported a significant rate of prevalence with their large sample. It was, however, still well-below the prevalence estimates (ranging from 28.8% to 37.6%) given by Harasty and Reed (1994) for school-aged children with a communication impairment. Other factors that may contribute to findings therefore need to be considered.

Definition and types of communication impairment

McKinnon, McLeod and Reilly (2007) found low rates of prevalence when they asked teachers to report specific communication impairments. The participants in their study were all the children attending 36 primary schools in one Catholic diocese in Sydney (n = 10,425). Again, teachers were provided with definitions to assist their identification of specific subtypes of communication impairment and identified children were assessed by a SLP. They reported prevalence figures ranging from 0.12% for voice disorders and 0.33% for stuttering, through to 1.06% speech-sound disorders.

The relatively low prevalence rate for stuttering supports prior research findings and confirms it as one of the only impairments for which reported prevalence rates have been quite stable. Craig, Hancock, Tran, Craig and Peters (2002) conducted a recent epidemiological study of stuttering across the life-span, and found the prevalence of stuttering over the whole population to be 0.72% (n = 12,131). However, Craig et al. (2002) reported a higher prevalence in younger children – 1.4% among 2–5-year-olds and 1.44% among 6–10-year-old children. This is similar to the prevalence rate for stuttering obtained by McKinnon et al. (2007). It may be that an understanding of how stuttering is defined is relatively standard, and constant across the lifespan, which contributes to the stability of reported prevalence figures. However, Wake and Reilly (2001) identified the lack of clear, consistent definitions as a major flaw in the current prevalence research into communication impairments generally.

Duff, Proctor and Yairi (2004) obtained a higher prevalence rate for voice disorders in their research with a sample of American preschool children (n = 2445). In their study, agreement of two clinicians was required to identify children as having a voice disorder. They found 3.9% of the sample “presented with a voice disorder characterised by hoarseness” (p. 350). It may be that this definition of a voice disorder,
combined with the mode of identification, contributed to the higher prevalence reported.

The low prevalence of speech impairment found in the study by McKinnon et al. (2007) is outside the range (2.3% to 24.6%) found in the systematic review conducted by Law et al. (2001). It is also well below the estimates given by Harasty and Reed (1994) for school-aged children with a communication impairment (28.8% to 37.6%). However, Law et al. (2001) acknowledged the variability of figures provided in prevalence studies of speech delay, as being possibly greater than other communication disorders (i.e., language). This may be due to the different manifestations of speech impairment across the lifespan and dependent on the complexity of the speech task, and whether the definitions used in a study are sensitive enough to measure this. It is possible that McKinnon et al.’s (2007) findings were influenced by different definitions and criteria used to evaluate a speech impairment and different modes of identification compared to other studies.

**Format/wording of questionnaires**

Keating, Turrell and Ozanne (2001) found results similar to McKinnon et al. (2007) in a study utilising data from the 1995 Australian Health Survey for children aged 0–14 years (n = 12,388). This data were collected via face-to-face interviews with a responsible adult (usually a parent) and related to medical conditions that children were experiencing at the time of the interview. Parents were asked about specific conditions, then shown prompt cards with commonly occurring long-term conditions, including “speech impairment”. Those who responded positively were asked for additional information to clarify the nature of the speech difficulty. Results showed 1.7% of children reportedly had a childhood speech disorder, which was defined as “difficulties talking, producing speech sounds, or stuttering” (Keating et al. 2001, p. 432). Keating et al. (2001) revealed a peak prevalence of 7.4% was reported for males at 5 years. The heightened prevalence of communication impairment among males is one of the few findings reported quite consistently among prevalence studies (Law et al., 2000).

The influence of mode of identification (parent/teacher report versus standardised assessment) and definition of communication impairment were discussed earlier. The wording of parent/teacher report measures relates to both these issues. Wake and Reilly (2001) show the possible influence of questioning/wording through example – fewer than 2% of parents agreed that their child had a “speech impairment” in the study by Keating et al. (2001). However, a greater percentage of parents may have identified concerns if this had been worded differently. For instance, McLeod and Harrison (2006) reported 24.4% of parents indicated concerns about “how their child talked and made speech sounds”. As Hutchison and Gordon (2004) stated, “The right questions must be asked in the right way” (p. 104).

**Prevalence and risk factors**

Recently a group of Australian researchers commenced a longitudinal study investigating the communication development of infants (n = 1911; Reilly et al., 2006). At present, preliminary results have been released, which suggest early language skills (particularly gestures) may be the best predictors of later language ability. Performance was also linked to gender, twin birth and family history of speech and language difficulties. Thus the population and characteristics of children from which the prevalence data are obtained is another variable that may influence results. The study by Reilly et al. (2006) will undoubtedly contribute to future knowledge regarding prevalence of communication impairment and associated risk factors.

**Conclusion**

This review of recent research indicates that the investigation of prevalence of communication disorders in Australia is an ongoing study. There is a wealth of prevalence data, but currently no consensus regarding which is the most valid. A study that defines communication impairment in one way cannot be compared to another that uses a different definition. Similarly, generalisation of results cannot be made beyond the sample that is represented in a study. Indeed, “Generalization from any given study must be done in the most conservative way” (Blum-Harasty & Rosenthal, 1992, p. 75). Therefore, it appears that the speech pathology profession needs to arrive at a consensus regarding the definition of communication impairments and the most valid and reliable way of measuring this before any prevalence rates can be considered conclusive.

**Acknowledgment**

This research was supported by Australian Research Council Discovery Project DP0773978.

**References**


Jane McCormack is a speech-language pathologist who is currently undertaking her PhD at Charles Sturt University, Albury.

Correspondence to:
Jane McCormack
PhD student and Research Assistant
Charles Sturt University, PO Box 789
Albury, NSW 2640
phone: 02 6051 6835
e-mail: jnmccormack@csu.edu.au