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Phonological and language disorders in children who stutter: impact on treatment recommendations

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Abstract

In the profession of speech-language pathology, it is commonly reported that children who stutter, as a group, are more likely to have phonological and language disorders than their non-stuttering peers. Some support for this belief comes from survey studies that have questioned speech-language pathologists about the children on their caseloads who stutter. Recently, one such study reported that 44% of children who stuttered had at least one additional communication disorder (Arndt & Healey, 2001). In the present investigation, speech-language pathologists ($n = 127$) who were treating children with speech and language disorders were questioned about their views on the treatment of stuttering. The results indicated that children who stutter and have at least one additional disorder are more likely to be recommended for treatment than those whose only disorder is stuttering. This suggests that caseload surveys may overestimate the rate of additional communication disorders in children who stutter. The results provide reason to question the widespread belief that children who stutter have a high rate of concomitant disorders, especially when it is based on caseload surveys. Suggestions are offered for ways to determine more precisely the frequency with which stuttering co-occurs with other speech and language disorders in children through large-scale epidemiological research.

Keywords: Stuttering, children, concomitant communication disorders, language, phonology.

In the profession of speech-language pathology, it is commonly reported that children who stutter frequently have additional communication disorders, particularly in the areas of phonology and language (Anderson & Conture, 2000; Arndt & Healey, 2001; Blood & Seider, 1981; Bloodstein, 1995, 2002; Hill, 1995; Louko, Conture, & Edwards, 1999; Louko, Edwards, & Conture, 1990; St. Louis & Hinzman, 1988; Wolk, Edwards, & Conture, 1993; Tetnowski, 1998; Yaruss &

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Conture, 1996; Yaruss, Lasalle, & Conture, 1998). For example, reports have indicated that phonological disorders occur in 30–40% of children who stutter compared with only 2–6% of children who do not stutter (Bernstein Ratner, 1995; Conture, Louko, & Edwards, 1993; Louko, 1995; Melnick & Conture, 2000; Wolk, 1998; Wolk, Blomgren, & Smith, 2000), and that children who stutter are more likely to have weak language skills (e.g., narration, syntax, morphology, vocabulary) compared to their non-stuttering peers (Ryan, 1992; Scott, Healey, & Norris, 1995; Starkweather, 1987; Westby, 1974; Williams, Melrose, & Woods, 1969).

Survey studies have offered some support for this belief. For example, Arndt and Healey (2001) recently surveyed 241 speech-language pathologists from ten different states who were asked to report the numbers of children on their caseloads who stuttered and had additional communication disorders. Their findings indicated that, out of 467 children who stuttered (ages 3 through 20 years; mean age = 9 years), 205 (44%) had one or more additional communication disorders, leaving 262 children (56%) for whom stuttering was their only disorder. Of the 205 children with one or more additional disorders, 66 (32%) had a phonological disorder, 72 (35%) had a language disorder, and 67 (33%) had both a phonological and a language disorder.

Similarly, in an earlier study, Blood and Seider (1981) surveyed 358 speech-language pathologists who were asked to report the prevalence of concomitant disorders in children on their caseloads who stuttered. Out of 1060 children who stuttered (ages 14 years and younger), 725 (68%) had at least one additional communication disorder, leaving 335 (32%) with stuttering as their only disorder. Of the 725 children with concomitant disorders, 170 (23%) had a phonological disorder, 104 (14%) had a language disorder, 42 (6%) had both a phonological and a language disorder, and the remaining 316 (44%) had a variety of other problems affecting communication (e.g., voice, hearing impairment, cerebral palsy, emotional disturbance, etc.).

It is clear that some children who stutter also exhibit phonological or language disorders (Paden & Yairi, 1996; Yaruss *et al*., 1998), just as some children who do *not* stutter exhibit those disorders (Tomblin, Records, Buckwalter, Zhang, Smith, & O'Brien, 1997; Shriberg, Tomblin, & McSweeny, 1999). The possibility of children experiencing multiple communication disorders is not being questioned. However, the hypothesis that children who stutter, as a group, are more likely to suffer phonological or language disorders than their non-stuttering peers has been called into question, primarily because of inconsistencies in the research (see Nippold, 1990, 2001, 2002). Although survey studies have consistently supported this hypothesis (Arndt & Healey, 2001; Blood & Seider, 1981), other studies that directly examined children for stuttering and concomitant disorders have been less supportive. While some of those studies found that children who stuttered frequently had phonological or language disorders (e.g., Louko *et al*., 1990; St. Louis, Murray, & Ashworth, 1991; Williams *et al*., 1969; Yaruss *et al*., 1998), others did not find evidence of this (e.g., Bernstein Ratner, 1998; Kadi-Hanifi & Howell, 1992; Nippold, Schwarz, & Jescheniak, 1991; Ryan, 2000; Watkins, Yairi, & Ambrose, 1999).

In sum, there is a discrepancy in the literature concerning the frequency with which concomitant phonological and language disorders occur in children who stutter. This is an important issue for research. Having valid and reliable estimates of the co-occurrence of stuttering with other communication disorders would contribute to an understanding of the scope of the problem and its potential impact on children. It is essential, therefore, that additional research be conducted to establish more precisely the frequency with which children who stutter experience

concomitant disorders. To that end, Nippold (2001) suggested that it may be useful to consider the manner in which children are recruited to participate in research. In stuttering research, it seems reasonable to request referrals from speech-language pathologists who often have access to large numbers of children having a variety of disorders. However, this procedure may introduce bias into the selection process, because it is questionable that the children who reach the speech-language pathologist's caseload are truly representative of those who stutter.

In the Arndt and Healey (2001) survey of speech-language pathologists, described above, the authors pointed out that most states provide verification ("eligibility") guidelines for school-based speech-language pathologists to use in qualifying children to receive services. For example, they reported that in Oregon, one of the states included in their survey, the State Department of Education specifies that a child must display "disfluent speech behaviors… in more than one speaking situation… and the presence of secondary coping behaviors" (p. 70), where disfluencies include abnormal sound prolongations and repetitions of sounds, syllables, and words. However, these guidelines are written somewhat generally, allowing professionals to use their judgment in qualifying children for services. Recognizing that speech-language pathologists have some flexibility in setting up their caseloads, one might ask if children who stutter and have additional communication disorders are more likely to receive treatment than those whose only disorder is stuttering, with the former child seeming to have "a more serious problem." This seems possible, given that professionals today are faced with "burgeoning caseloads that often impede their ability to provide quality services" (Annett, 2002, p. 12). The present study was an effort to begin to address this question. Speech-language pathologists in Oregon were surveyed concerning their views on the treatment of stuttering in children.

Method

Participants and Recruitment Procedures

All participants were attending the annual conference of the Oregon Speech-Language and Hearing Association (OSHA), held in Portland, Oregon, in October 2002. OSHA has a membership of approximately 540 individuals, including speech-language pathologists, audiologists, deaf educators, and students (OSHA, 2002). The conference is open to all members and interested nonmembers. During the business meeting, attended by approximately 350 individuals, a copy of the survey was distributed to each attendee. The investigator described the general purpose of the study and requested the participation of all speech-language pathologists who, at the time, were treating children with speech and language disorders. Participants were asked to complete the survey at the conclusion of the meeting and, upon leaving the room, to deposit it in one of several large boxes that had been placed at the doors. The survey was self-explanatory (see Appendix) and required approximately ten minutes to complete. Respondents were encouraged but not required to write any comments next to the questions. No personally identifying information was requested, and all responses remained anonymous. Because audiologists, deaf educators, students, and speech-language pathologists who worked exclusively with adults also attended the meeting, not all attendees were expected to complete the survey.

Results

Characteristics of the respondents

A total of 127 speech-language pathologists (SLPs) completed the survey, all of whom were treating children with speech and language disorders. One set of questions (Appendix, Questions 1–7) addressed their educational backgrounds, qualifications, work experiences, and caseloads. Reported in Table 1, the majority of these professionals held a master's degree (94%), the ASHA Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP) (81%), an Oregon

Table 1. *Characteristics of the respondents (n = 127)*

Response category	Item	Frequency	Percentage
Highest degree	Bachelor's	2	2%
	Master's	120	94%
	Doctoral	5	4%
Certificates/licenses	CCC-SLP	103	81%
	State license	100	79%
	Endorsement	80	63%
Era of education	before 1970	7	6%
	1970–1979	25	20%
	1980–1989	37	29%
	1990–1999	43	34%
	2000–present	15	12%
Years of experience	1–3	20	16%
	4–6	21	17%
	7–10	12	9%
	11–15	20	16%
	16–20	15	12%
	21+	39	31%
Work setting	Public school	87	69%
	Private school	2	2%
	Clinic/hospital	23	18%
	Community agency	9	7%
	Rehabilitation center	8	6%
	Private practice	17	13%
	Other	16	13%
Number of children receiving treatment for stuttering	None	34	27%
	1–2	64	50%
	3–5	21	17%
	6–10	2	2%
	11–15	0	0%
	16+	4	3%
	No response	2	2%
Age of children receiving treatment for stuttering	1–2 years	4	3%
	3–4 years	33	26%
	5–6 years	26	20%
	7–10 years	49	39%
	11–13 years	17	13%
	14–18 years	9	7%
	Not applicable	34	27%

Table 2. *SLPs' response to the question, "In your opinion, how early should children first be treated for stuttering?"*

Age of Child	Frequency	Percentage
Toddlers (1–2 years old)	21	17%
Preschoolers (3–4 years old)	75	59%
Kindergarteners (5–6 years old)	25	20%
Elementary school students (7–10 years old)	3	2%
Middle school or high school students (11 years +)	1	1%
Unsure	2	2%

State License in Speech-Language Pathology (79%), and an Endorsement to work as an SLP in the public schools (63%). Most had earned their highest degree during the 1990s (34%), 1980s (29%), or 1970s (20%), with the remainder having earned their highest degree between 2000 and 2002 (12%) or before 1970 (6%).

The number of years the respondents had worked as SLPs ranged from 1–3 (16%) to more than 20 (31%), with the majority (59%) having worked over 10 years. Although a variety of work settings were reported – including clinics or hospitals (18%) and private practice (13%) – over two-thirds (69%) worked in the public schools. At the time of the survey, nearly three-fourths (72%) were treating at least one child who stuttered. Many were treating elementary school children (39%) in addition to preschoolers (26%) and kindergarteners (20%). Fewer professionals were treating toddlers (3%), middle school (13%), or high school (7%) students.

Views on the treatment of stuttering

Respondents were asked to indicate how early they believed treatment for stuttering should begin (Appendix, Question 8). As reported in Table 2, the majority (59%) believed treatment should begin during the preschool years (ages 3–4 years). Others believed it should begin during kindergarten (ages 5–6 years) (20%) or the toddler years (1–2 years) (17%). Thus, nearly all of these respondents (96%) favored early treatment for stuttering. Nevertheless, some respondents qualified their response choice, commenting that they would provide treatment for preschool children only in cases of severe or chronic stuttering. Some explained that this would include children whose stuttering had lasted "over a year" or was accompanied by "secondary symptoms," or whose speech was "extremely disfluent" or marked by "struggle and tension." Others commented that they would provide treatment only if the child expressed "frustration" or "awareness" of the problem or if there was "a family history of stuttering."

Respondents were also asked if they were more likely to provide treatment for a child who stutters if that child has an additional communication disorder (Appendix, Question 9). As reported in Table 3, nearly one-third (31%) said "yes," almost half (46%) said "no," and the remainder (23%) expressed uncertainty. In commenting on their answers, some who said "yes" expressed the belief that the presence of an additional communication disorder could worsen the stuttering or otherwise compound the child's difficulties, creating a greater need for services. Others who said "yes" commented that an additional disorder would make it easier to qualify a child for services, particularly if the child's stuttering was mild. Others implied that the presence of a language disorder would constitute a more serious

Table 3. *SLPs' response to the question, "Are you more likely to treat a child who stutters if there is an additional communication disorder?"*

Response Type	Frequency	Percentage
Yes	40	31%
No	59	46%
Unsure	28	23%

problem than stuttering, rendering the child in greater need of treatment. Some who said "no" commented that stuttering itself is a significant problem for a child and should be treated early in order to prevent a larger problem later. As one SLP explained, "Stuttering can turn into a nightmare for a student." Another commented that it would be a "disservice not to treat" the child whose only disorder is stuttering. Others who said "no" commented that if a child meets eligibility criteria for stuttering, the child would be served, and that the presence of an additional communication disorder would be irrelevant. Of those who were "unsure," some commented that factors to consider would be the severity of the child's stuttering, its impact on the child (i.e., the child's "attitude," "concern," "awareness"), how long the child had been stuttering, the presence of any secondary symptoms, the degree of parental concern, the family's desire for services, and the severity of the other communication disorder(s). Some indicated they probably would not treat a preschool child with mild stuttering and no other disorders, but would counsel the family and monitor the child.

To examine SLPs' views on the treatment of stuttering in relation to specific types of concomitant disorders, the remaining questions (Appendix, Questions 10–13) focused on a hypothetical four-year-old boy who stuttered. The respondents were asked to indicate if they believed the SLP should provide treatment when (1) the child's only problem was stuttering; (2) the child stuttered and had a phonological disorder; (3) the child stuttered and had a language disorder; and (4) the child stuttered and had a phonological and a language disorder. The results are reported in Table 4. When stuttering was the child's only problem, 71% of the

Table 4. *SLPs' views on treatment for a hypothetical 4-year-old boy who stutters*

	Recommend treatment?	Frequency	Percentage
Stuttering only	Yes	90	71%
	No	10	8%
	Unsure	27	21%
Stuttering + phonological disorder	Yes	116	91%
	No	3	2%
	Unsure	8	6%
Stuttering + language disorder	Yes	120	94%
	No	1	1%
	Unsure	6	5%
Stuttering + phonological + language disorder	Yes	119	94%
	No	3	2%
	Unsure	5	4%

Table 5. *Contingency table reporting how frequently SLPs (n = 127) recommended treatment for a child who stutters in relation to the absence or presence of additional disorders*

	Recommend Treatment?		
	Yes	No or Unsure	Total
Stuttering only	90	37	127
Stuttering + phonological disorder	116	11	127
Stuttering + language disorder	120	7	127
Stuttering + phonological + language disorder	119	8	127
Total	445	63	508
Chi-Square (3) = 44.27, $p < .0001$			

respondents said "yes" to treatment, 8% said "no," and 21% were unsure. However, when a phonological disorder was also present, 91% of the respondents said "yes" to treatment, 2% said "no," and only 6% were unsure. Similarly, when the child stuttered and had a language disorder, 94% said "yes" to treatment, 1% said "no," and 5% were unsure; and when stuttering was accompanied by both a phonological and a language disorder, 94% said "yes" to treatment, 2% said "no," and 4% were unsure.

To examine these data statistically, a 2 × 4 (Treatment × Disorder) contingency table (Table 5) was constructed using the frequency with which each of two response types (1 = yes; 0 = no or unsure) occurred for each disorder condition. Instances of "no" and "unsure" responses were combined into one response type (0) because of their small cell sizes. A chi-square test was performed to examine the association between an unequivocally positive recommendation for treatment and the number of disorders a child displayed. The results were statistically significant [Chi-square (3) = 44.27, $p < .0001$], supporting the hypothesis that SLPs are more likely to recommend treatment for stuttering when at least one other communication disorder (phonology or language) is present, in contrast to the situation where stuttering is the child's only disorder.

Immediately following each question concerning treatment when stuttering is accompanied by one or more additional communication disorders, the respondent was asked to choose the recommended type of treatment, given several options (Appendix, Questions 11–13). As shown in Table 6, when the child stuttered and had an additional communication disorder, the majority recommended treatment to address both or all disorders: Stuttering and a phonological disorder (83%); stuttering and a language disorder (87%); stuttering and both a phonological and a language disorder (72%). However, many SLPs commented that for children with multiple disorders, treatment should focus primarily on the phonological and/or language disorder, giving less attention to the stuttering, especially when it was mild. Some expressed the belief that focusing on phonology or language could indirectly improve the child's stuttering. In contrast, others commented that stuttering should be the focus of treatment and that the SLP should be "careful not to create more problems with too much emphasis on phonology or language."

Discussion

The purpose of this study was to address the following question: Are children who stutter and have additional communication disorders more likely to receive

Table 6. *The type of treatment recommended for a hypothetical 4-year-old boy (includes data only from respondents who said "yes" to treatment in corresponding question in Table 3)*

	Type of treatment Recommended Frequency	Percentage
Stuttering + phonological disorder		
A. treatment for stuttering only	10	9%
B. treatment for phonology only	9	8%
C. treatment for both stuttering and phonology	96	83%
D. uncertain	1	1%
Stuttering + language disorder		
A. treatment for stuttering only	3	3%
B. treatment for language only	11	9%
C. treatment for both stuttering and language	104	87%
D. uncertain	2	2%
Stuttering + phonological + language disorder		
A. treatment for stuttering only	3	3%
B. treatment for phonology only	4	3%
C. treatment for language only	7	6%
D. treatment for stuttering and phonology	2	2%
E. treatment for stuttering and language	13	11%
F. treatment for stuttering, phonology, and language	86	72%
G. uncertain	4	3%

treatment from the speech-language pathologist (SLP) than those whose only disorder is stuttering? To begin to answer this question, SLPs in Oregon who were treating children with speech and language disorders were asked to complete a questionnaire. Based on the responses of 127 well-educated and experienced professionals, the answer appears to be "yes."

The results indicated that nearly all of the respondents favored early treatment of stuttering, particularly for preschool children. This is an encouraging finding because recent research has indicated that early intervention can be effective in decreasing the rate of stuttering in young children, offering a measurable advantage over natural recovery (Harris, Onslow, Packman, Harrison, & Menzies, 2002). However, many SLPs in this investigation commented that not all young children who stutter would be appropriate candidates for treatment. For example, children with mild stuttering who were not expressing frustration over their speech were less likely to be recommended for treatment than those whose stuttering was severe, accompanied by struggle, tension, and other secondary physical characteristics.

The rationale behind this recommendation is unknown. One possibility is that some of these professionals may have assumed that children with milder stuttering symptoms are more likely to recover without treatment. However, longitudinal research on natural recovery in young children does not necessarily support that assumption. As Yairi, Ambrose, Paden, and Throneburg (1996) reported, children who eventually recovered actually showed more severe disfluencies near the onset of stuttering than those whose stuttering persisted. Those investigators also reported that the frequency of secondary stuttering behaviors such as head and facial movements in young children did not predict eventual recovery. This suggests that children with mild stuttering and few secondary behaviors would be good candidates for early intervention. This information is relevant to practicing SLPs

who may be basing their own treatment recommendations on the overt severity of the child's stuttering symptoms.

In the present study, nearly one-third of the respondents (31%) indicated that a child who stuttered and had an additional phonological or language disorder would receive priority for treatment over one who simply stuttered. Although nearly half of the respondents (46%) did not agree with this position, the remainder (23%) expressed uncertainty. This suggests that more than half of the respondents (54%) appeared to be influenced or were perplexed by the presence of a concomitant disorder when making recommendations for the treatment of stuttering.

Some respondents commented that the presence of an additional communication disorder would constitute a more serious problem. In describing this condition as "serious," it is unknown if these professionals were referring to the possibility that the child might continue to stutter if left untreated. In any case, it should be noted that longitudinal research on natural recovery conducted by Yairi and colleagues (1996) has offered some support for the view that children whose stuttering persists are more likely to show early weaknesses in phonological or language development compared to those whose stuttering remits. At the same time, those investigators emphasized that there were exceptions to this pattern where stuttering persisted in some children who exhibited no other problems. Hence, it would be risky to predict persistence or recovery based on the presence or absence of other disorders. This information is relevant to practicing SLPs who must decide whether or not to recommend treatment for young children.

Additional evidence of the impact that concomitant disorders can have on the decision to recommend treatment was obtained when the respondents were asked about a four-year-old boy who stuttered. When the child's only problem was stuttering, 71% said "yes" to treatment, a sizeable majority. Yet with the addition of a language or phonological disorder (or both), more than 90% recommended treatment. When asked about the type of treatment for a child having multiple disorders, the majority indicated that all disorders should be addressed. However, some respondents commented that the phonological or language disorder should be emphasized, giving less attention to the stuttering, especially when mild. Others believed that treatment should focus on the stuttering, giving less attention to the other disorders. Thus, there seems to be some disagreement among SLPs concerning the optimum focus of treatment for children who stutter and have other communication disorders. This supports the view that professionals are in need of evidence-based guidelines for stuttering intervention when additional disorders are present.

In this survey of practicing speech-language pathologists, most of whom held a master's degree and the ASHA CCC and had over ten years of experience in the profession, it was found that children who stutter and have at least one additional communication disorder are more likely to be recommended for treatment than those whose only disorder is stuttering. If children who stutter and have an additional disorder are indeed more likely to reach the SLP's caseload, then studies that survey SLPs about their caseloads (e.g., Arndt & Healey, 2001; Blood & Seider, 1981) may overestimate the rate of concomitant disorders in children who stutter. Because the findings of the present study reflect the opinions of a modest sample of professionals, it is impossible to know how representative they are of speech-language pathologists in general. For this reason, the results should be considered preliminary. Nevertheless, the study provides reason to question the

widespread belief that children who stutter, as a group, have a high rate of concomitant disorders, especially when this belief is based on the results of caseload surveys.

A different approach to research is needed to determine more precisely the frequency with which children who stutter experience concomitant disorders. Rather than conducting additional surveys of professionals or drawing children from SLPs' caseloads and then examining them for the co-occurrence of stuttering and other communication disorders, investigations are needed where children are sampled in a broader and more representative fashion. Detailed descriptions of large-scale epidemiological studies of children having various communication disorders are available in the literature. Tomblin and colleagues (1997), for example, screened a stratified sample of 7,218 kindergarten children attending public schools in urban, suburban, and rural areas of the United States to determine the prevalence of specific language impairment, yielding an estimate of 7.4% for boys and girls combined. To estimate the co-occurrence of stuttering and other communication disorders in young children, one might conduct a similar epidemiological study focusing on preschools and day care centers attended by large and diverse groups of children. Alternatively, one might conduct an epidemiological study similar to that of Mansson (2000) who screened 1,021 three-year-old children living on the Island of Bornholm, Denmark, and estimated that the prevalence of stuttering was 5% for boys and girls combined. His study, which represented 98% of the population of three-year-olds on Bornholm, was possible because all children living there were offered a speech, language, and hearing screening, paid for by the government, where clinicians visited the children in their homes to conduct the testing. By screening all children in a designated geographic area for stuttering, phonology, and language, one could determine more precisely the frequency with which phonological and language disorders occur in children who stutter compared to their non-stuttering peers, matched on age, gender, language, and culture. Future research that employs this type of methodology could help resolve the discrepancies in the literature concerning the frequency with which stuttering co-occurs with other communication disorders in children.

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References

ANDERSON, J. D. and CONTURE, E. G., 2000, Language abilities of children who stutter: A preliminary study. *Journal of Fluency Disorders*, **25**, 283–304.

ANNETT, M. M., (2002, September 10), New caseload policy calls for analysis of school clinicians' total workload. *The ASHA Leader*, **7**(16), 12.

ARNDT, J. and HEALEY, E. C., 2001, Concomitant disorders in school-age children who stutter. *Language, Speech, and Hearing Services in Schools*, **32**, 68–78.

BERNSTEIN RATNER, N., 1995, Treating the child who stutters with concomitant language or

phonological impairment. *Language, Speech, and Hearing Services in Schools*, **26**, 180–186.

BERNSTEIN RATNER, N., 1998, Linguistic and perceptual characteristics of children at stuttering onset. In E. C. Healey and H. F. M. Peters (Eds.), *Proceedings from the Second World Congress on Fluency Disorders of the International Fluency Association* (pp. 3–6). Nijmegen, The Netherlands: Nijmegen University Press.

BLOOD, G. W. and SEIDER, R., 1981, The concomitant problems of young stutterers. *Journal of Speech and Hearing Disorders*, **46**, 31–33.

BLOODSTEIN, O., 1995, *A Handbook on Stuttering* (5th ed.). San Diego, CA: Singular.

BLOODSTEIN, O., 2002, Early stuttering as a type of language difficulty. *Journal of Fluency Disorders*, **27**, 163–167.

CONTURE, E. G., LOUKO, L. J. and EDWARDS, M. L., 1993, Simultaneously treating stuttering and disordered phonology in children: Experimental treatment, preliminary findings. *American Journal of Speech-Language Pathology*, **2**, 72–81.

HARRIS, V., ONSLOW, M., PACKMAN, A., HARRISON, E. and MENZIES, R., 2002, An experimental investigation of the impact of the Lidcombe Program on early stuttering. *Journal of Fluency Disorders*, **27**, 203–214.

HILL, D. G., 1995, Assessing the language of children who stutter. *Topics in Language Disorders*, **15**(3), 60–79.

KADI-HANIFI, K. and HOWELL, P., 1992, Syntactic analysis of the spontaneous speech of normally fluent and stuttering children. *Journal of Fluency Disorders*, **17**, 151–170.

LOUKO, L. J., 1995, Phonological characteristics of young children who stutter. *Topics in Language Disorders*, **15**, 48–59.

LOUKO, L. J., CONTURE, E. G. and EDWARDS, M. L., 1999, Treating children who exhibit co-occurring stuttering and disordered phonology. In R. F. Curlee (Ed.), *Stuttering and related disorders of fluency* (2nd ed., pp. 124–138). New York: Thieme Medical Publishers.

LOUKO, L. J., EDWARDS, M. L. and CONTURE, E. G., 1990, Phonological characteristics of young stutterers and their normally fluent peers: Preliminary observations. *Journal of Fluency Disorders*, **15**, 191–210.

MANSSON, H., 2000, Childhood stuttering: Incidence and development. *Journal of Fluency Disorders*, **25**, 47–57.

MELNICK, K. S. and CONTURE, E. G., 2000, Relationship of length and grammatical complexity to the systematic and nonsystematic speech errors and stuttering of children who stutter. *Journal of Fluency Disorders*, **25**, 21–45.

NIPPOLD, M. A., 1990, Concomitant speech and language disorders in stuttering children: A critique of the literature. *Journal of Speech and Hearing Disorders*, **55**, 51–60.

NIPPOLD, M. A., 2001, Phonological disorders and stuttering in children: What is the frequency of co-occurrence? *Clinical Linguistics and Phonetics*, **15**(3), 219–228.

NIPPOLD, M. A., 2002, Stuttering and phonology: Is there an interaction? *American Journal of Speech-Language Pathology*, **11**, 99–110.

NIPPOLD, M. A., SCHWARZ, I. E. and JESCHENIAK, J. D., 1991, Narrative ability in school-age stuttering boys: A preliminary investigation. *Journal of Fluency Disorders*, **16**, 289–308.

OSHA (2002). *Oregon Speech-Language and Hearing Association 2002 Membership Directory.* Salem, OR: Oregon Speech-Language & Hearing Association.

PADEN, E. P. and YAIRI, E., 1996, Phonological characteristics of children whose stuttering persisted or recovered. *Journal of Speech and Hearing Research*, **39**, 981–990.

RYAN, B. P., 1992, Articulation, language, rate, and fluency characteristics of stuttering and nonstuttering preschool children. *Journal of Speech and Hearing Research*, **35**, 333–342.

RYAN, B. P., 2000, Speaking rate, conversational speech acts, interruption, and linguistic complexity of 20 preschool stuttering and nonstuttering children and their mothers. *Clinical Linguistics and Phonetics*, **14**, 25–51.

SCOTT, L. A., HEALEY, E. C. and NORRIS, J. A., 1995, A comparison between children who stutter and their normally fluent peers on a story retelling task. *Journal of Fluency Disorders*, **20**, 279–292.

SHRIBERG, L. D., TOMBLIN, J. B. and MCSWEENY, J. L., 1999, Prevalence of speech delay in 6-year-old children and comorbidity with language impairment. *Journal of Speech, Language, and Hearing Research*, **42**, 1461–1481.

STARKWEATHER, C. W., 1987, *Fluency and Stuttering*. Englewood Cliffs, NJ: Prentice-Hall.
ST. LOUIS, K. O. and HINZMAN, A. R., 1988, A descriptive study of speech, language, and hearing characteristics of school-aged stutterers. *Journal of Fluency Disorders*, **31**, 331–355.
ST. LOUIS, K. O., MURRAY, C. D. and ASHWORTH, M. S., 1991, Coexisting communication disorders in a random sample of school-aged stutterers. *Journal of Fluency Disorders*, **16**, 13–23.
TETNOWSKI, J. A., 1998, Linguistic effects on disfluency. In R. Paul (Ed.), *Exploring the Speech-Language Connection* (pp. 227–251). Baltimore, MD: Brookes.
TOMBLIN, J. B., RECORDS, N. L., BUCKWALTER, P., ZHANG, X., SMITH, E. and O'BRIEN, M., 1997, Prevalence of specific language impairment in kindergarten children. *Journal of Speech, Language, and Hearing Research*, **40**, 1245–1260.
WATKINS, R. V., YAIRI, E. and AMBROSE, N. G., 1999, Early childhood stuttering III: Initial status of expressive language abilities. *Journal of Speech, Language, and Hearing Research*, **42**, 1125–1135.
WESTBY, C. E., 1974, Language performance of stuttering and nonstuttering children. *Journal of Communication Disorders*, **12**, 133–145.
WILLIAMS, D. E., MELROSE, B. M. and WOODS, C. L., 1969, The relationship between stuttering and academic achievement in children. *Journal of Communication Disorders*, **2**, 87–98.
WOLK, L., 1998, Intervention strategies for children who exhibit coexisting phonological and fluency disorders: A clinical note. *Child Language Teaching and Therapy*, **14**, 69–82.
WOLK, L., BLOMGREN, M. and SMITH, A. B., 2000, The frequency of simultaneous disfluency and phonological errors in children: A preliminary investigation. *Journal of Fluency Disorders*, **25**, 269–281.
WOLK, L., EDWARDS, M. L. and CONTURE, E. G., 1993, Coexistence of stuttering and disordered phonology in young children. *Journal of Speech and Hearing Research*, **36**, 906–917.
YAIRI, E., AMBROSE, N. G., PADEN, E. P. and THRONEBURG, R. N., 1996, Predictive factors of persistence and recovery: Pathways of childhood stuttering. *Journal of Communication Disorders*, **29**, 51–77.
YARUSS, J. S. and CONTURE, E. G., 1996, Stuttering and phonological disorders in children: Examination of the covert repair hypothesis. *Journal of Speech and Hearing Research*, **39**, 349–364.
YARUSS, J. S., LASALLE, L. R. and CONTURE, E. G., 1998, Evaluating stuttering in young children: Diagnostic data. *American Journal of Speech-Language Pathology*, **7**(4), 62–76.

Appendix

University of Oregon Stuttering Survey

Please complete this survey if you are a speech-language pathologist currently treating children with speech and language disorders. Your responses will remain anonymous. Thanks for your time!

Please tell us a little about yourself by answering some questions. For each question, circle the answer choice that best describes your background, experience, or opinion.

1. How many years have you worked as a speech-language pathologist (SLP)?

   A. 1–3
   B. 4–6
   C. 7–10
   D. 11–15
   E. 16–20
   F. 21 or more

2. In what setting(s) do you currently work as an SLP? Circle all that apply:

   A. public school
   B. private school
   C. clinic or hospital
   D. community agency
   E. rehabilitation center
   F. private practice
   G. other (please write in): _____

3. What is your highest academic degree?

   A. Bachelor's
   B. Master's
   C. Doctoral
   D. Other (please write in): _____

4. When did you receive your highest degree?

   A. Before 1970
   B. 1970–1979
   C. 1980–1989
   D. 1990–1999
   E. 2000–present

5. What certificates and/or licenses do you hold? (circle all that apply)

   A. CCC-SLP (ASHA)
   B. State of Oregon License in Speech-Language Pathology
   C. Oregon Endorsement from Teacher Standards and Practices Committee (TSPC)
   D. others (please write in):_____

6. How many children who stutter do you currently treat?

   A. none
   B. 1–2
   C. 3–5
   D. 6–10
   E. 11–15
   F. 16 or more

7. What is the age range of the children in Question #6? Circle all that apply.

   A. toddlers (1–2 years)
   B. preschoolers (3–4 years)
   C. kindergarteners (5–6 years)
   D. elementary school students (7–10 years)
   E. middle school students (11–13 years)
   F. high school students (14–18 years)

8. In your opinion, how early should children first be treated for stuttering?

   A. as toddlers (1–2 years old)
   B. as preschoolers (3–4 years old)
   C. as kindergarteners (5–6 years old)
   D. as elementary school students (7–10 years old)
   E. as middle school or high school students (11 years and older)
   F. unsure

   Any comments?

9. Are you more likely to treat a child who stutters if there is an additional communication disorder?

   A. yes
   B. no
   C. unsure

   Any comments?

Each child described below is a 4-year-old boy who stutters. For each child, indicate if you believe the SLP should provide treatment. Please circle your answer.

	Recommend treatment?		
10. Stuttering is the only problem. (phonology and language are normal)	Yes	No	Unsure
11. Stuttering plus a phonological disorder.	Yes	No	Unsure

If *yes*, circle the type of treatment you recommend:

A. treatment for stuttering only
B. treatment for phonology only
C. treatment for both stuttering and phonology

Any comments?

12. Stuttering plus a language disorder.	Yes	No	Unsure

If *yes*, circle the type of treatment you recommend:

A. treatment for stuttering only
B. treatment for language only
C. treatment for both stuttering and language

Any comments?

13. Stuttering plus a phonological and a language disorder. Yes No Unsure

If *yes*, circle the type of treatment you recommend:

A. treatment for stuttering only
B. treatment for phonology only
C. treatment for language only
D. treatment for stuttering and phonology
E. treatment for stuttering and language
F. treatment for stuttering, phonology, and language

Any comments?