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Language Outcomes of Late Talking Toddlers at Preschool and Beyond

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Toddlers who demonstrate delayed onset and progression of expressive language in conjunction with otherwise age-appropriate development are often referred to as “late talkers”. The development of language in this group of children who enter the expressive language stream at a later point in development than their peers is of clinical significance, especially to those who provide early identification and intervention services. From a practical standpoint it is necessary to ascertain whether late talkers ultimately “recover” and develop adequate language skills, or if late talking in toddlerhood is a precursor to difficulties with language throughout school age and into adulthood. In addition, evidence suggests that a subset of children who are initially identified as late talkers are later diagnosed with Specific Language Impairment at school entry. However, to date, the ability to pinpoint which late talkers are most likely to continue to experience challenges with language is limited.

Late Talking Defined

Restricted early vocabulary and protracted expressive language development are typically considered hallmarks of late talking. Within the research literature, the classification of children as late talkers has varied in terms of age of identification and extent of delay, as well as the label that has been used. Late talkers have been described in the early literature on the topic as having specific expressive language delay, or expressive language delay. The label late talker’ was subsequently adopted in order to differentiate these children from children with specific language impairment, given the significant percentage of children who recover and relatively positive outcomes that are typically associated with late talkers.

For research purposes, late talkers often are identified based on parent report measures of expressive vocabulary such as the Language Development Survey (LDS; Rescorla, 1989) or

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the MacArthur-Bates Communicative Development Inventory (CDI, Fenson et al., 1993, 2007). Both of these measures provide parents and caregivers with a fixed set of vocabulary words from which the parent is to select words his or her child has produced. The measures differ in the number of words that are included. The LDS includes 310 early vocabulary words while the Words and Sentences form of the CDI includes 680 words. Although the words that are included on both instruments differ, recent research has found significant correlations between the two measures in their ability to classify toddlers with expressive language delay (Rescorla, Bernstein-Ratner, Jusczyk, & Jusczyk, 2005).

In addition to the use of different measures, researchers have set varying criteria for identification of late talkers. An expressive vocabulary containing fewer than 50 of the 310 words included on the LDS or the lack of two-word combinations at two years of age were among the criteria used in early work focusing on late talkers (Rescorla, 1989). More recent criteria have included performance below the 10th percentile on the CDI at 24 months of age (e.g., Ellis Weismer, 2007; Dale, Simnoff, Bishop, & Plomin, 1998) or below the 15th percentile on the LDS between 18 and 23 months of age (Rescorla & Achenbach, 2002). In practical terms the most recent normative information for the CDI indicates that the 10th percentile translates to 92 of 680 expressive vocabulary words at 24 months of age for girls and 63 of 680 expressive vocabulary words for boys. In comparison, the 50th percentile (i.e., the average # of expressive vocabulary words) for 24 month olds on the CDI yields values of 346 of 680 and 252 of 680 words for girls and boys respectively (Fenson et al., 2007).

Despite differences in parameters or cut-offs for inclusion, the late talker label is applied to children who demonstrate limited expressive vocabulary in the face of otherwise typical development. One exception to this is that studies looking at late talkers have also varied in terms of accompanying receptive language level. Within the literature, some late talking samples include children with no more than mild impairments in receptive language, while others are restricted to children with normal-range receptive language abilities.

Investigations into the language development of late talkers often have employed longitudinal methods by which the language skills of groups of identified children are compared to those of peers at specific points in time. Children that are included in a control group are matched to late talkers on the basis of criteria such as socioeconomic status, gender, and nonverbal cognitive level. At present, the majority of the research that has been completed with late talking toddlers has focused on the period between toddlerhood and kindergarten entry.

Preschool and Kindergarten Language Outcomes

A variety of studies indicate that children who are initially identified as late talkers, as a group, demonstrate language skills that are largely within the normal range by kindergarten entry with respect to performance on norm-referenced, standardized language measures (Ellis Weismer, 2007; Paul, 1996; Rescorla & Lee, 2000; Whitehurst & Fischel, 1994). Although late talkers' performance on global tests of expressive and receptive language fall broadly within normal range by kindergarten entry, these findings tell only part of the story, as standard scores tend to be significantly lower than those of matched peers (Ellis Weismer 2007; Rescorla 2000, 2002). For example, Ellis Weismer (2007) investigated the language outcomes of 40 late talkers as compared to 43 typically developing peers at 5 ½ years of age who were initially enrolled in a longitudinal investigation of language development at 24 months. Results indicated that 3/40 late talkers demonstrated performance at least one standard deviation below the mean with respect to Speaking Quotient (i.e., expressive language composite score) on the Test of Language Development – Preschool, 3rd Edition (TOLD-P3, Newcomer & Hammill, 1997) when compared to national norms. Further, all children were at or above normal range with

respect to performance on the Listening Quotient (i.e., receptive language composite score) of the same measure.

While this evidence might suggest that the majority of late talkers resolve their language difficulties by early school age, considering performance relative to that of matched peers yields different results. Although the overall language abilities (i.e., standard scores and percentile ranks) of children who are initially identified as late talkers may be within normal limits with respect to national norms, late talkers continue to demonstrate specific areas of deficit, including grammar in particular. For example, Ellis Weismer (2007) compared the mean performance of the same group of toddlers described above (minus the three who had scores greater than one standard deviation below the mean) to toddlers with normal language development. Within this comparison, the group of late talkers demonstrated scores within normal range on both the listening and speaking quotients of the TOLD-P3. However, their scores were significantly lower than the group with typical language development. Specific difficulties were noted in sentence imitation, a measure of syntax and grammatical morphology. Findings in this direction are consistent with previous investigations that have shown normal range but lower performance in late talkers as compared to peers (Paul, 1996; Rescorla 2000, 2002).

Girolametto, Wiigs, Smyth, Weitzman, and Pearce (2001) also investigated the long-term language outcomes of children identified as late talkers at two years of age. This study focused on a sample of 21 late talkers as determined by vocabulary in the lower 5th percentile on the CDI at two years of age. All late talkers participated in a parent language training program for 11 weeks at age two with 13 of 21 participants also receiving additional speech-language therapy. This group of late talkers was compared at five years of age to a group of peers matched for chronological age, gender and race/ethnicity. Results indicated that 3/21 late talkers scored greater than 1.25 standard deviations below the mean on at least two subtests of the TOLD-2 (Newcomer & Hammill, 1988) or Renfrew Bus Story test (Cowley & Glasgow, 1994). In addition, performance of the late talking group was significantly lower for the Grammatic Completion and Oral Vocabulary subtest of the TOLD-2. Within a story telling task, the late talkers were significantly lower in MLU as well as measures of narrative level and percentage of cohesion.

Rescorla, Dahlsgaard, and Roberts (2000) tracked the language outcomes at ages three and four of a group of children initially identified as late talkers in toddlerhood in comparison to a group of typically developing peers. Children within this study demonstrated normal receptive language skills. Findings revealed that although late talkers made greater progress in MLU and productive syntax than the children with normal language abilities from age three to four, they remained significantly below typical peers. At age three more than half of the late talker group remained delayed in syntax. However, by age four, only 29 % of the late talkers continued to demonstrate significant delays when compared to their normal language peers. Further, the relationship and patterns of development of syntax was similar for the two groups, with the late talker group appearing to be delayed rather than disordered.

The idea that as a late talker it is possible to catch up to your peers with respect to your language development is not unfounded. Some children who are initially identified as late talkers do indeed begin school with language skills that are at or above age level. Within Ellis Weismer's (2007) sample of 40 late talkers, ten demonstrated age level performance on all measures that were administered at 5 ½ years of age. Specific resiliency factors in early childhood that contribute to such an outcome are in need of further investigation.

Language Outcomes Beyond Kindergarten

Limited findings also exist for the period beyond kindergarten entry for children who are initially identified as late talkers. The reasons for this may be largely practical rather than theoretical, given the resources that are required to track the same sample of children over a large window of time.

Paul, Hernandez, Taylor, and Johnson (1996) followed a group of late talkers identified between 20 and 34 months of age and a group of matched controls over time. Receptive language abilities varied within this sample. Findings revealed that 74% of the children who were initially identified as late to talk were within normal limits with respect to syntax and morphology at kindergarten entry (i.e., Developmental Sentence Scores (DSS; Lee, 1974) above the 10th percentile in narrative language samples). Within this investigation, these children were classified as “recovered” and were differentiated from the children who remained delayed. This group of children demonstrated significantly lower scores on the expressive scale of the Test of Language Development at age seven than their typically developing peers, though both groups demonstrated scores within normal limits (TOLD, Newcomer & Hammill, 1988). This finding suggests that children who are late to talk continue to demonstrate weakness in language when compared to typical peers. Though not significant enough to be classified as a delay, this subclinical weakness in language could significantly impact academic success.

Rescorla (2002) completed an extensive longitudinal investigation of the language development of a group of children who were initially identified as late talkers into early school age and beyond. Of a group of 34 late talkers and 32 controls, all of whom had age-appropriate receptive language at study entry, only 6% of the late talkers had scores on at least two subtests of the TOLD within an impaired range at six years of age. However, as a group, late talkers were significantly lower in vocabulary skills at six, seven and eight years of age and in grammar (i.e., grammatical morpheme use and sentence formulation) at ages six and eight. In addition, significant group differences were found in aggregate measures of reading (i.e., decoding, comprehension, spelling, and written language) at ages eight and nine, though none had a formally diagnosed reading impairment. These findings again point to persistent but subtle language weaknesses that may not be apparent when simply considering scores on formal language measures.

Manhardt and Rescorla (2002) also analyzed the oral narrative abilities of a subset of 31 late talkers and 23 typical peers from the study described above at ages eight and nine. Findings revealed significant difficulty in the use of narrative structure for children who were late talkers, in contrast to the findings of Paul et al., described above. Late talkers scored lower on measure of syntax, story grammar and evaluative information when compared to typical peers, though their CELF-R scores were in the average range. These data are consistent with the notion that while most are not delayed enough to warrant a label of language impairment, late talkers continue to demonstrate weakness in language beyond kindergarten as compared to peers. When one considers the impact of language on many, if not all areas of academic achievement, it is critical that these children continue to be monitored for educational success.

Additional language data from 28 late talkers and 25 comparison children from the original Rescorla sample were collected at age 13 (Rescorla, 2005). As was the case with previous findings, late talkers scored largely within developmental limits. Late talkers demonstrated most difficulty with measures that tapped into vocabulary and grammar (i.e., Test of Adolescent and Adult Language, Listening Vocabulary, Listening Grammar and Reading Grammar; TOAL-3, Hammill, Brown, Larsen & Wiederholt, 1994). In addition, late talkers were significantly lower on aggregated measures of terms of vocabulary, grammar, verbal memory

and reading comprehension. However, late talkers performed similarly to age peers on measures of reading mechanics and writing.

The studies that were outlined above all included relatively small numbers of participants, and looked at group outcomes as a whole. Although these types of investigations are informative and can serve as a starting point for consideration of language growth in late talkers, advanced statistical techniques can also inform our view of late talkers by providing information about growth trajectories. A recent study by Rice and colleagues (2007) utilized growth modeling to investigate the language outcomes of 128 children with a history of late talking as compared to 109 typically developing peers at seven years of age. Findings revealed that although the late talkers demonstrated skills within the average range on a global measure of language functioning, a significantly greater percentage of children in the late talking group demonstrated skills that were more than one standard deviation below the mean in spoken language, syntax and morphosyntax (Rice, Taylor, & Zubrick, 2007).

Limitations of Existing Research

The existing research regarding language outcomes for late talking toddlers, while valuable, is not without limitations. Given practical difficulties associated with recruiting participants from special populations, the majority of the studies that focus on late talkers include relatively small sample sizes. In addition, the samples are limited to those who are willing to participate. Within the above studies, the samples of late talkers who have been studied have been largely homogeneous with respect to ethnicity and SES, with the majority of participants from upper or middle SES homes that are within close proximity to research centers and universities. As such, these data may not extend to all children growing up in America today.

The other major limitation of the above investigations is the lack of quantification of the amount or type of intervention children received. This is no small endeavor. While many of the studies reported the number or range of hours of intervention in which children participated, there is limited information as to the effect that such intervention may have had on subsequent language outcomes. In addition, as language intervention is highly variable with respect to many child and clinician factors such as type, frequency, and clinician-child rapport, such a measure may be difficult to calculate. Despite this difficulty, there is a great need for future investigations of the impact of language therapy on the development of late talking toddlers. Such information is necessary to further guide clinical decision making.

An additional point of consideration for the language development of late talking toddlers is the role of comprehension. While the majority of existing studies focus on children with no more than mild delays in comprehension, the specific influence of the ability to understand and process language on subsequent vocabulary and language acquisition is worthy of further exploration. Language comprehension scores have been shown to be significant predictors of language outcome in late talkers (Ellis Weismer, 2007; Thal, Tobias, & Morrison, 1991). It is possible that variability in language comprehension within late talkers may ultimately point to processing deficits shown in older children with Specific Language Impairment.

Clinical Implications

The take-home message regarding clinical management of late talking toddlers is positive, though not without caution. The above research indicates that the majority of late talkers will end up with language skills that are largely within normal limits with respect to national norms by the time they are in school. In comparison to other developmental delays the outlook is largely hopeful. However, it is necessary to remember that the above research findings primarily deal with the average level of performance of groups of children. As such, an individual child's language trajectory may or may not follow the patterns described above. It

seems safe to say, however, that children who are late to talk in preschool tend to have weaker language skills at school entry. Though these children may not require or qualify for intervention services, it would be sensible to closely monitor the individual progress of identified late talkers with respect to the acquisition of higher-level language and reading skills, as these skills are critical for academic achievement. In a society in which the ability to effectively use language to speak, understand, read and write clearly impacts later educational and vocational success, children who continue to demonstrate relatively weaker language abilities than their peers would certainly be at a disadvantage.

References

- Cowley, J.; Glasgow, C. The Renfrew bus story: Language screening by narrative recall. Circle Pines, MN: American Guidance; 1994.
- Dale P, Simonoff E, Bishop DVM, Plomin R. Genetic influence on language delay in two-year-old children. *Nature Neuroscience* 1998;1:324–328.
- Ellis Weismer, S. Typical talkers, late talkers, and children with specific language impairment: A language endowment spectrum?. In: Paul, R., editor. *The influence of developmental perspectives on research and practice in communication disorders: A Festschrift for Robin S. Chapman*. Mahwah, NJ: Erlbaum; 2007. p. 83-102.
- Fenson, L.; Dale, PS.; Reznick, S.; Thal, D.; Bates, E.; Hartung, J., et al. *MacArthur Communicative Development Inventories: Users' guide and technical manual*. San Diego, CA: Singular; 1993.
- Fenson, L.; Marchman, V.; Thal, D.; Dale, P.; Reznick, J.; Bates, E. *MacArthur Communicative Development Inventories: Users' guide and technical manual*. 2. Baltimore, MD: Brookes; 2007.
- Girolametto L, Wiigs M, Smyth R, Weitzman E, Pearce P. Children with a history of expressive language delay: Outcomes at 5 years of age. *American Journal of Speech Language Pathology* 2001;10:358–69.
- Hammill, DD.; Brown, VL.; Larsen, SC.; Wiederholt, JL. *Test of Adolescent and Adult Language*. Austin, TX: Pro-Ed; 1994.
- Lee. *Developmental sentence analysis*. Evanston, IL: Northwestern University Press; 1974.
- Manhardt J, Rescorla L. Oral narrative skills of late talkers at ages 8 and 9. *Applied Psycholinguistics* 2002;23:1–21.
- Newcomer, P.; Hammill, D. *Test of Language Development-Primary*. 3. Austin, TX: Pro-Ed; 1997.
- Newcomer, P.; Hammill, D. *Test of Language Development-Primary*. 2. Austin, TX: Pro-Ed; 1988.
- Paul R. Clinical implications of the natural history of slow expressive language development. *American Journal of Speech-Language Pathology* 1996;5:5–21.
- Paul R, Hernandez R, Taylor L, Johnson. Narrative development in late talkers: Early school age. *Journal of Speech and Hearing Research* 1996;39:1295–1303. [PubMed: 8959614]
- Rescorla L. The Language Development Survey: A screening tool for delayed language in toddlers. *Journal of Speech and Hearing Disorders* 1989;54:587–599. [PubMed: 2811339]
- Rescorla L. Do late-talking toddlers turn out to have reading difficulties a decade later? *Annals of Dyslexia* 2000;50:87–102.
- Rescorla L. Language and reading outcomes to age 9 in late-talking toddlers. *Journal of Speech, Language, and Hearing Research* 2002;45:360–371.
- Rescorla L. Age 13 language and reading outcomes in late-talking toddlers. *Journal of Speech, Language, and Hearing Research* 2005;48:459–472.
- Rescorla L, Roberts J. Nominal versus verbal morpheme use in late talkers at ages 3 and 4. *Journal of Speech, Language, and Hearing Research* 2002;45:1219–1231.
- Rescorla, L.; Lee, E. Language impairments in young children. *Handbook of early language impairment in children: Vol I*. In: Layton, T.; Watson, L., editors. *Nature*. New York: Delmar Publishing Company; 2000. p. 1-38.
- Rescorla L, Achenbach TM. Use of the language development survey (LDS) in a national probability sample of children 18 to 35 months old. *Journal of Speech, Language, and Hearing Research* 2002;45:733–743.

- Rescorla L, Bernstein-Ratner N, Jusczyk P, Juczyk A. Concurrent Validity of the Language Development Survey: Associations With the MacArthur—Bates Communicative Development Inventories-Words and Sentences. *American Journal of Speech Language Pathology* 2005;14:146–153.
- Rescorla L, Dahlsgaard K, Roberts J. Late-talking toddlers: MLU and IPSyn outcomes at 3;0 and 4;0. *Journal of Child Language* 2000;27:643–664. [PubMed: 11089342]
- Rice M, Taylor C, Zubrick S. Language outcomes of 7-year-old children with or without a history of late language emergence at 24 months. *Journal of Speech, Language, and Hearing Research* 2007;51:394–407.
- Thal D, Tobias S, Morrison D. Language and gesture in late talkers: A one year follow-up. *Journal of Speech and Hearing Disorders* 1991;34:604–612.
- Whitehurst G, Fischel J. Early developmental language delay: What, if anything should the clinician do about it? *Journal of Child Psychology and Psychiatry* 1994;35:613–648. [PubMed: 8040218]