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Prediction and persistence of late talking: A study of Italian toddlers at 29 and 34 months

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ABSTRACT

This study analyzed the communicative, linguistic and symbolic skills in Italian Late Talking (LT) toddlers. Thirty-five participants were identified through a language-screening program at 29 months by using the Italian version of MB-CDI W&S Short Form. Cognitive, communicative and linguistic skills were evaluated 5 later, with indirect and direct tools. The MB-CDI WS Short Form revealed, in LT children, weakness in gesture production, decontextualized comprehension, verbal imitation, symbolic play, and phonological accuracy. Our results confirmed lexical size at 29 months is the predictive factor to identify language delay at 34 months. The clinical assessment at 34 months confirmed that 89% of the LT children had a vocabulary size below the 10th percentile on the MB-CDI Complete Form. On a structured task, LT children showed lexical comprehension more preserved than lexical production, and more advanced skills in nouns than in predicates. Weakness in socioconversational abilities emerged. Correlation among maternal education, expressive vocabulary and socio-conversational competence in LT children was evidenced. Strong association among cognitive, communicative and linguistic skills were documented.

1. Introduction

The term “Late Talkers” (LT) refers to young children aged 18–35 months who are slow to develop expressive language in the absence of any known primary cause (Hawa & Spanoudis, 2014; Rescorla, 2011). Although these children have a limited expressive vocabulary and/or receptive language, no cognitive, neurological, socio-emotional, or sensory deficits are present (Rescorla, 1989; Thal, 2000). Late Talkers have been described using a variety of terminology, for example “Developmental language delay”, “Early expressive language delay”, “Early language delay”, “Specific expressive language impairment”, “Slow expressive language development”, “Late language emergence” (Cable & Domsch, 2011). The primary criterion for defining LT is delayed expressive vocabulary (Desmarais, Sylvestre, Meyer, Bairati, & Rouleau, 2008). In effect, according to parental report, a toddler is considered a LT if the average number of words included in her/his expressive vocabulary is equivalent to the 10th percentile or below (Dollaghan, 2013).

The prevalence of late-talking children varies in studies. In large population-based cohorts, the percentage of LT ranges from 13% to 20% at 2 years of age (Horwitz et al., 2003; Reilly et al., 2010; Zubrick, Taylor, Rice, & Slegers, 2007). Collisson et al. (2016) have recently reported a lower prevalence in children aged 24–30 months (12.6%) relative to that estimated in previous studies. Korpilahti, Kaljonen, and Jansson-Verkasalo (2016) estimated a percentage of LT of 9.6% for children at 2 years, based on the MB-CDI questionnaire, and 8.8% for children at 3 years, based on direct standardized tests.

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A family history of language-related difficulties has been associated with early language delay (Bishop et al., 2012). Collisson et al. (2016) have confirmed male gender and a positive family history of LT as significant risk factors for this condition.

Although there are large individual differences in the timing of early language milestones, the impact of delayed vocabulary development on later language acquisition is still under debate. Some studies have shown on that around 70–80% of LT develop appropriate language skills and move into the typical range of vocabulary development by 3–4 years (Ellis & Thal, 2008; Rescorla, 2011). The majority of young LT performed in the average range on language and literacy measures in the later primary school years and beyond, though often at levels below that of their unaffected peers (Rescorla & Dale, 2013; Rescorla, 2002, 2009; Rice, Taylor, & Zubrick, 2008; Roos & Weismer 2008).

Some factors stand out as more consistently predictive of persistent language delay. In particular, toddlers with early delays in language comprehension in addition to language production more often display persistent language disorders (Bishop et al., 2012; Desmarais, Sylvestre, Meyer, Bairati, & Rouleau, 2010; Thal, Marchman, & Tomblin, 2013; Weismer, 2007). Other studies highlight that low rates of non-verbal symbolic or communicative gestures might indicate an additional risk (Ellis & Thal 2008; Thal et al., 2013).

A recent study by Zambrana and colleagues (Zambrana, Pons, Eadie, & Ystrom, 2014) presents an integrative risk model that includes poor early communicative skills, family history for language and/or learning impairment and male gender. These factors predict LT trajectories in the preschool years in quantitatively and qualitatively different ways. Both specific familial risk and children's poor early communication skills could contribute to the better prediction of different LT trajectories (children who will show persistent as compared with transient delay), confirming previous studies (Bishop et al., 2012; Henrichs et al., 2011; Reilly et al., 2010).

Parental questionnaires of expressive vocabulary, such as Language Developmental Survey (LDS, Rescorla, 1989) or MacArthur-Bates Communicative Development Inventories (MB-CDI, Fenson et al., 1993, 2007) have been widely used to identify LTs.

As the MB-CDI original, Complete Form is expensive and time consuming a Short Form of MB-CDIs has been developed for some languages (Eriksson, Westerlund, & Berglund, 2002; Fenson et al., 2000; Jackson-Maldonado, Marchman, & Fernald, 2013; Kern, Langue, Zesiger, & Bovet, 2010; López Ornat et al., 2005; Pae, Kwak, Kim, Lee, & Jung, 2008; Pérez-Pereira & Resches, 2011; Sachse & Von Suchodoletz, 2008; Tardif et al., 2008; Vach, Blases, & Jørgensen, 2010; Westerlund, Berglund, & Eriksson, 2006; Zink & Lejaegere, 2007). Short Forms of the MB-CDI are particularly suitable for screening projects and are more appropriate for families from less educated backgrounds (Kim et al., 2014; Pan, Rowe, Spier, & Tamis-LeMonda, 2004). Moreover, these versions of the questionnaire are cost-saving, time efficient, reliable and valid.

At present, only three studies have been carried out to confirm the convergence between the Complete and Short Forms of the MB-CDI (Fenson et al., 2007; Jackson-Maldonado et al., 2013; Pérez-Pereira & Resches, 2011).

The predictive validity of the Short Form was also demonstrated in a longitudinal study in which language competences (expressive vocabulary, syntax, semantics), together with specific skills such as, phonemic awareness, word recognition and decoding skills, were assessed four years after the first evaluation using the MB-CDI Short Form (Can, Ginsburg-Block, Golinkoff, & Hirsh-Pasek, 2013). In Italy, the MB-CDI Short Forms have been developed and standardized, the "Word and Gesture – WG" version for infants from 8 to 24 months and the "Words and Sentences – WS" version for young children from 18 to 36 months (Caselli, Bello, Rinaldi, Stefanini, & Pasqualetti, 2015). The latter includes specific questions to investigate gesture production, decontextualized comprehension, imitation, intelligibility of words and symbolic play (see the Method section for more details). It is widely used for clinical purposes as well as for the early identification of young children with delays in language development, and the correlation between vocabulary size assessed using the Complete and the Short Forms completed within a week yielded very high correlation (Pearson's $r = 0.92$), which was also maintained when partialling out age ($r = 0.85$) (Rinaldi, Pasqualetti, Stefanini, Bello, & Caselli, submitted).

However, until now, no studies have been conducted that describe the linguistic and communicative skills of Italian LT assessed using the WS Short Form. Moreover, no studies have demonstrated the validity of the Short Form in predicting the results obtained using the Complete Form for Italian-speaking toddlers.

The first aim of this study was to describe the linguistic, communicative and symbolic skills of LT as assessed by the Italian MB-CDI WS Short Form.

Our second aim was to determine if the vocabulary size of LT at 29 months, assessed using the WS Short Form, predicted later lexical development, assessed using the WS Complete Form.

The third aim of the study was to explore the characteristics of the children at 34 months, 5 months after their identification as LT. Both indirect and direct measures are used to describe the linguistic and socio-conversational abilities of the children.

The fourth aim was to determine the inter-relationships among cognitive skills, linguistic measures, socio-conversational abilities and maternal educational level and how they predicted the linguistic outcomes of late-talking children.

2. Methods

2.1. Participants

Thirty-five Italian late-talking toddlers (23 boys, 12 girls) participated in this study. They were identified as LT through a language screening program at an average of 29 months (SD = 1.8; range = 26–35) (see the Procedures section for more details). All children were evaluated longitudinally in local clinical services offered to preschool-age children.

In this study, we present the data regarding the first clinical follow-up, when the children were 34 months of age on average (SD = 2.9; range = 28–41). The time between the screening and the clinical assessment was on average 5 months. None of the