



Early vocabulary in full term and preterm Estonian children

Astra Schults^{a,b,*}, Tiia Tulviste^{a,b}, Elis Haan^a

^a University of Tartu, Estonia

^b Centre of Behavioral and Health Sciences, Estonia

ARTICLE INFO

Article history:

Received 13 November 2012

Received in revised form 14 April 2013

Accepted 15 May 2013

Keywords:

Preterm children
Early vocabulary
Language development
CDI
Estonian language
Parental report

ABSTRACT

Background: Preterm birth is considered to be a high risk factor for child development and early vocabulary can be used as an indicator for later development.

Aims: The aim of the present study is to compare the size of early vocabulary, proportional use of different word categories, and mean length of utterance (henceforth MLU) of preterm and full term children.

Method: The sample consisted of 40 preterm (corrected ages 16–25 months) and two matched groups of full term children. First full term group consisted of 120 children who were matched by age and gender. Second full term group consisted of 109 children who were matched by age, gender and size of productive vocabulary. The data for this study were gathered using the Estonian adaptation of MacArthur–Bates Communicative Development Inventory: Words and Sentences.

Results: Full term children who were matched by age and gender had larger vocabulary as compared to the preterm children's vocabulary ($U = 1758.5$, $p = 0.01$). Poisson regression yielded that age, gender, and preterm birth explained significantly the variance in the vocabulary size. Poisson regressions showed that all three variables explained significantly variance in proportional use of social terms and predicates. Age had significant effect for proportional use of common nouns. Age and preterm birth had a significant effect on the proportional use of function words. MLU was shorter in preterm than in full term children ($U = 1125.0$, $p = 0.002$).

Conclusions: Estonian preterm children's vocabulary is slightly smaller than full term children's vocabulary. There is a difference in the proportions of word categories used, as preterm children use more social terms, and less predicates, and function words.

© 2013 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Early vocabulary has been demonstrated to be a good predictor of later development. Preterm birth is considered to be a high risk factor for the child development, including language development. Early diagnosis for language problems in preterm children and enrollment in language-focused interventions permits to anticipate and alleviate some of the future developmental problems these children might face. The aim of the present study is to compare the size and composition of early vocabulary and MLU of preterm and full term children.

Preterm children's language development has been shown to differ from full term children's language development starting as early as ten months of age and continuing to the school years. Those differences tend to be slight, not reaching statistical significance on every occasion, but the differences are still consistently found. As different researchers have had different criteria for including preterm born children in the studies these criteria probably have an effect on the results obtained. Some studies have included those preterm children

who have found to be healthy, other studies have allowed for some medical problems, and still other studies have allowed for severe medical problems. The gestational ages and birth weights of the preterm children have varied from study to study as well. Keeping these confounding factors in mind some differences in preterm and full term children language development are brought out next. In the beginning of productive vocabulary development starting around the age of 10 months, preterm born children have been shown to produce fewer canonical syllables (well formed syllables with consonant vowel structure) than the full term children [30]. At 24 months preterm born children have smaller productive vocabulary [9,10] and more social terms (words for games, routines and animal noises) compared to the full term children [9]. At the same age preterm children have been found to use less complex morphology and syntax [10]. Preterm born children have been shown to have fewer verbs in their vocabulary at the age of 42 and 60 months [34]. At this age they also produce fewer and shorter sentences [34]. At school age preterm born children have been shown to have smaller receptive vocabulary, deficits in sentence comprehension [33] and naming difficulties [33,39]. Even at the age of ten years preterm born children had smaller receptive and productive vocabularies compared to the full term born children [36]. According to these previous results we

* Corresponding author at: Institute of Psychology, University of Tartu, Tiigi 78-336, 50410 Tartu, Estonia. Tel.: +372 7 375906; fax: +372 7 375900.

E-mail address: astra.schults@ut.ee (A. Schults).

assume that the preterm children in our study will have smaller productive vocabulary and shorter sentences compared to the full term children. We also assume that the differences seen at the earlier age (at 16 to 18 months of age) will be still present at the age of 24 and 25 months.

The differences found in language development between preterm and full term children have been explained by many authors. Three levels of explanations can be differentiated. First, there are neurological deficits explanations which focus on the possible damage and the location of damage or on neural maturation. It has been shown that extremely low birth weight children are more prone to the damage to the periventricular region of the brain in the perinatal period. Damage to this region is associated with later deficiencies in working memory, difficulties with sentence comprehension, reduced receptive vocabulary and naming difficulties [33]. Neural maturation has been found to have an effect on the infants' ability of speech discrimination [37]. Second, there are explanations focusing on underlying cognitive processes. For example, it has been proposed that children born premature and with very low birth weight perform poorer in language measures because of slower information processing and attention deficits [32]. Very immature preterm birth has been shown to affect phonological working memory abilities leading to persisting albeit not severe difficulties in grammar development [35]. Through school age as they grow older the preterm children can develop more problems like having difficulties with attention, memory and reasoning skills instead of growing out of their problems [11]. Third, there are explanations dealing more specifically with language perception. These include phonetic perception and word segmentation ability under the age of 12 months which have been shown to be related to productive vocabulary at 24 months [38,40]. We assume that neural maturation as well as early phonetic perception and word segmentation play part in our sample's results as we have not included any preterm children with perinatal brain damage or later medical complications.

As to productive vocabulary development around 16 to 18 months of age the size of children's productive vocabulary grows significantly so that instead of some words there will be dozens of words in children's active vocabulary [1,2]. As the productive vocabulary size reaches 20–50 words rapid word acquisition follows in many cases [3–5]. This more rapid growth of productive vocabulary starts oftentimes during the second year of life of the child [6]. The rapid increase in the size of productive vocabulary has been explained in several ways. One explanation brings forth the idea that vocabulary starts to grow fast as the children discover that things can be named and understand the concept of naming [7]. Another explanation connects the growth in productive vocabulary to the development of concepts and the ability to categorize. Growth in vocabulary follows as the concepts become more detailed and easier to separate from one another [8]. It has been shown that productive vocabulary development is slower for the children born prematurely [9,10]. Children born preterm have also been found to produce shorter and simpler utterances compared to full term children [10,29].

Research has shown that some word categories are used proportionally more by the children according to the size of their productive vocabulary. When the vocabulary is less than 50 words social terms form the largest proportion [4,12]. The category of social terms refers to words for sound effects and animal sounds, people, and games and routines. When the vocabulary grows over 50 words common nouns (e.g., words for animals, vehicles, toys, food and drink, clothing, body parts, furniture and rooms, small household items) form the largest proportion of vocabulary in several languages (e.g., Danish, Dutch, English, Estonian, Finnish, French, Italian, Spanish) [2,4,12–17,19] but not in others (e.g., Mandarin) [20]. At the same time the use of predicates (including verbs and adjectives) shows a slow and steady pattern of growth and the use of function words (e.g., pronouns, question words, prepositions and locations, and quantifiers) remains

at a constant low level [2,12,13]. Explanations for the noun bias include the possibility that the proportion of nouns in child's vocabulary corresponds to the proportions of nouns in child-directed speech [1,21] and the possibility that different parental strategies lead children to either produce more nouns or to produce more predicates (e.g. maternal use of directives increases the proportion of verbs in child's early vocabulary) [20,22,23]. Preterm children have been shown to have more nouns and less function words in their productive vocabulary compared to full term children [9,10,24,25]. It is suggested that overall pattern of vocabulary development in the use of different semantic categories is delayed rather than deviant for the preterm children compared to the full term children [9]. In this study we aim to see if the same pattern applies to our sample and to show that the productive vocabulary size rather than child's age has an effect on the type of words belonging to child's vocabulary.

Girls' vocabulary has been shown to be larger than boys' vocabulary during the first years [7,15,17,18]. Girls' advantage has been explained by faster maturation process. It has also been explained by gender based communication styles [26] as parents tend to speak more with the girls and try to make girls express themselves verbally more [27]. As to premature children's vocabulary development gender difference favoring girls has been shown to exist in some research [28] but not in others [10,29].

In this study, we assumed that older children have larger productive vocabularies and that full term born children have larger productive vocabulary compared to the preterm children. We compared the production of words belonging to different categories (social terms, common nouns, predicates, and function words) and expected preterm children to use proportionally more social terms and more nouns and fewer function words as compared to the full term children. We also checked if the difference was connected to smaller vocabulary size. We expected full term children to have higher MLU compared to the preterm children's MLU. We expected the full term girls to have more words in their productive vocabulary compared to the full term boys and checked for a gender difference in the preterm group. In addition to that we ran regression analyses to show possible age, gender, and being born preterm effects on the vocabulary size as well as on the use of words belonging to different categories.

2. Method

2.1. Participants

The sample consisted of 40 preterm children (16 boys and 24 girls) and their matched controls. Preterm children were born before the 36th week of pregnancy ($M = 30.6$, $SD = 0.23$, range of 24–35). Mean weight of preterm children at birth was 1618.1 g ($SD = 388.8$, range of 840–2500). Preterm children were recruited by medical personnel. The selection criteria were set so that only children with no congenital, physical or severe neurological anomalies were recruited. All of the preterm children were described as healthy by their parents. Corrected age was used for the preterm children [24,31].

Full term children were recruited by pediatricians, play-group teachers, and those parents who had previously completed the inventory about their own child's vocabulary. Full term children were matched for preterm children from a larger sample ($N = 752$). We formed two control groups. The first full term group (henceforth FT1) was formed to check for the effects of prematurity to productive vocabulary size and composition. It included 120 children (47 boys and 73 girls). Match criteria included gender and age in months (in case of preterm children we used their corrected age). The second full term group (henceforth FT2) was formed to check for the effect of productive vocabulary size to the productive vocabulary composition. It included 109 children (48 boys and 61 girls). The match criteria for the FT2 included overall vocabulary size in addition to

Download English Version:

<https://daneshyari.com/en/article/6172313>

Download Persian Version:

<https://daneshyari.com/article/6172313>

[Daneshyari.com](https://daneshyari.com)