Written Language Skills of Children with Cleft Palate

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The written language abilities of children with cleft palates aged eight to 13 were studied to compare performance with norms for the Picture Story Language Test. Although intelligence of this sample, as measured by the performance portion of the WISC, was skewed toward the superior and very superior ranges, the group ranked below the 50th percentile in total words used, words per sentence, and syntax quotients. Also, percentile scores on the PSLT declined as the age of the subjects increased.

These results differ from the Ebert, McWilliams, and Woolf (1974) study where younger children with cleft palates (ages six to eight) were found to exhibit age-appropriate written language.

The influence of factors affecting language development among the cleft palate population, such as methods and success of management, hearing, articulation, intelligence, sex, and psychosocial adjustment needs to be further investigated.

Introduction

Relatively few studies have been directed toward evaluating the expressive language of cleft palate children. Saxman (1972) urged that "variables other than the primary effects of velopharyngeal closure deserve a greater research emphasis." Pannbacker (1971), reviewing the language skills of cleft palate children, concluded that there was general agreement that the language of cleft palate children was, at least initially, delayed. On the basis of correlations found earlier between articulatory skills and measures of language development, Morris (1968) proposed that "speakers with more defective articulation may simply not talk as much or know as many words as speakers with less defective articulation." Faircloth and Faircloth (1972) speculated that some children with cleft palates may reduce sentence length and complexity to be more readily intelligible and rely on "accuracy of articulophonic production in minimal syntactic units." Other children with cleft palates relied on "accuracy of syntactic forms and elaboration of content in an effort to compensate for severe articulophonetic deficits."

If a language delay exists among cleft palate children, the question arises about any changes with age. Some researchers have concluded that, although language delay may be prevalent among young children with cleft palates, this delay is virtually eliminated by as early as five years of age (Shames, Rubin, and Kramer, 1966; Zimmerman and Canfield, 1968). Philips and Harrison (1969) and Smith and McWilliams (1968) have noted the opposite tendency, concluding that language skills become progressively more deficient with age. However, when language functioning of children with cleft palates was followed longitudinally by Musgrave, McWilliams, and Matthews (1975), improved psycholinguistic quotients over time were demonstrated. Pannbacker (1975) evaluated the oral language skills of adults with physically managed cleft palates (age range 19 to 26). She found that they tended to use shorter responses with significantly fewer different words than did a control group; however, she noted no significant differences in sentence structure between the two groups.

Measures to study the language of cleft palate children have varied, probably in keeping with the growing number of tools avail-
able for more in-depth analysis of language over the past twenty years.

One article (Ebert, McWilliams and Woolf, 1974) compared written language abilities of cleft palate and noncleft subjects. The authors based their study on Myklebust's (1965) suggestion that disorders of written language may be derived from disruptions or variations in the sequence of language development. They found no statistical differences in total words used, total sentences, number of words per sentence, abstract-concrete relationships, or syntax quotients. However, the mean scores for the cleft palate subjects were slightly lower than those of the noncleft subjects, with a larger standard deviation. Thus, Ebert et al. concluded that verbal expressive deficits of cleft palate children may not reflect disability in language competence when written expressive skills seem age-appropriate. However, the subjects in the Ebert et al. study ranged in age from six years 10 months to eight years eight months, all in first to third grades. Since children are learning to write in first grade, these results may have been biased by immature motor and spelling skills. The more advanced motor skills and written expressive abilities of older children may allow them more variety of expression and, therefore, there may be greater measurable differences between subjects' performances.

**Purpose**

With these questions in mind, the purpose of this study was to assess written language skills as measured by the Myklebust Picture Story Language Test (PSLT) of cleft palate children older than eight years and to compare these results with normative data for their age groups.

**Procedure**

Seventeen children (ten males and seven females) with palatal clefts ranging in age from eight to 13 years were chosen for the study. (Thirteen demonstrated clefts of the lip and palate and four clefts of the palate only.) None of the children had repeated a grade in school, and all had IQ's on the performance portion of the WISC, the 17 cleft palate subjects were skewed into the high levels of intelligence (Figure 1). Fewer of the cleft palate subjects ranked in the low average and average ranges and more in the superior and very superior groups than would have been expected in a sample of this size.

Nine of the subjects demonstrated pure tone thresholds for the frequencies 500, 1000, and 2000 Hz. of 15 dB HL or better bilaterally. Moreover, there was no suggestion of middle ear effusion in these subjects. The remaining eight subjects displayed evidence of middle ear effusion in either one or both ears. However, in no instance did the loss in the better ear exceed 20 dB HL over the speech range of 500 through 2000 Hz. From parental questionnaires, 16 of the 17 children presented histories of hearing loss, ear infections, or placement of pressure-equalizing tubes. Only one child had had no such symptoms which the parent recognized.

Social position of the subjects was determined by Hollingshead's Two Factor Index of Social Position (1957). The children were grouped into all five classifications described by Hollingshead: one in Group I (upper class); four in Group II; six in Group III; five in Group IV; two in Group V (lower class).

The Iowa Pressure Articulation Test was administered to all subjects to check their level of articulatory accuracy. The scores ranged from 14 to 43 correct items with 43 representing a perfect score. Five of the subjects obtained perfect scores, six had one to three errors, and six produced over seven errors. The most prevalent articulation errors were nasal emission of air and sibilant distortions.

![Intelligence Distribution](image)

**FIGURE 1.** More of the cleft palate subjects ranked in the superior and very superior levels of the WISC than would be projected for this sample size.
Written language skills were measured by the Myklebust Picture Story Language Test (PSLT) (1965). The test was administered by having each subject write a story about a given picture without assistance from the examiner. Measures of written language ability were judged according to: 1) total number of words (TW), 2) total number of sentences (TS), 3) number of words per sentence (WPS), 4) syntax quotient (SQ), and 5) abstract-concrete relationship (AC). These five aspects of written language yielded measures of productivity, syntax, and abstract-concrete relationship.

Results

Mean percentile scores were computed for each of the five aspects of written language measured on the PSLT (Figure 2). When the 50th percentile was used as a normative guideline, results for total words (41st percentile), words per sentence (34th percentile), and syntax quotients (26th percentile) were lower than the norm. The highest mean percentile ranking was the 53rd percentile scored by the group in the area of abstract-concrete relationships.

Higher performance IQ on the WISC was not always accompanied by higher percentile scores on the written task. In fact, syntax scores of the group with higher IQ’s were actually lower than those of the lower performance IQ group (Figure 3). It would have been valuable to have had verbal and full-scale IQ’s available for comparative purposes.

The subjects were also divided into two groups by age (8 years 2 months to 11 years 7 months [N = 8] and 11 years 10 months to 13 years 8 months [N = 9]). In all areas, the older group of children obtained lower percentile scores than the younger children (Figure 4).

Discussion

Ebert et al. (1974) studied children aged six years 10 months to 8 years 8 months and found that children with palatal clefts did not differ in language ability from children without. In contrast, this study of older children (aged eight years 2 months to 13 years eight months) found differences in written language ability. In the study presented here, scores in both total words and words per sentence ranked below the 50th percentile. Perhaps this reduction in written language interrelates with the reduction in expressive language suggested by Faircloth and Faircloth (1972), who believed that reducing sentence length and complexity may be used by some cleft palate children to be more intelligible. (Eleven of the 17 subjects in this study had three or less errors on the IPAT.) If spoken language is simplified, written language may also reflect this simplification. The lowest mean percentile was found in syntax (26th percentile). Of 96 total errors in syntax made by the subjects, 56 were because of word usage. Another 37.67 errors were due to punctuation (.33 points are awarded each punctuation error).

Mean percentile scores on the PSLT de-
Differences in percentiles when age is compared.

FIGURE 4. The older subjects' written language scores were consistently lower on the PSLT than those of the younger subjects.

creased with the age of the subjects, supporting the conclusions of Philips and Harrison (1969) who suggested that language skills become progressively more deficient with age.

The lower percentiles on the PSLT for the children with cleft palate are a striking contrast to their scores on the performance portion of the WISC. Although 58.7 per cent of the subjects scored in the high average to very superior groups on the WISC, this level of performance was not reflected in their written language scores on the PSLT. The highest mean percentile achieved was the 53rd percentile. This suggests that, in this group of subjects, written language skills, as measured by the PSLT, have not developed to the level of these same subjects' abilities as reflected on the performance portion of the WISC. Scores from the verbal portion of the WISC were not reported since these scores may not reflect "intelligence" as much as language performance itself.

In designing this study, the authors considered using a control group of normal children. However, several factors prevented this. First, school records were not made available to screen for best matched pairs. Secondly, the whole matching process seemed overwhelming if most relevant factors were to be considered. Thirdly, since this sample of children with cleft palates was admittedly small, an equally small group of "normal" controls may not have yielded a fair cross-section. Thus, the authors elected to use Myklebust's published normative data for comparison purposes. It is possible that a "normal" control group may also not have met Myklebust's normative levels of performance in written language, i.e., the norms may be unrealistically high. This possible weakness in research design must be considered in interpreting the results of this study.

"Cleftness" certainly does not lead to suspicions of a language problem in and of itself. However, if overall language deficits are common among children with cleft palate and are not necessarily resolved with age and maturation, future efforts need to be directed toward isolating those influencing variables, such as hearing loss, mental retardation, early home stimulation, success of overall management, or deviant articulation.

Summary

The written language abilities of the children with palatal clefts used in this study showed average to lower mean percentile scores when compared with the normative data of the PSLT. Lower percentiles were found in total words, words per sentence, and syntax scores.

Percentiles on the five aspects of written language studied declined as age increased, when the subjects were divided into two groups according to age. In spite of average to very superior abilities on the performance portion of the WISC, written language problems, especially syntax errors, were found in this sample of children with palatal clefts.

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