

A Comparison of the Written Language Ability of Cleft Palate and Normal Children

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Many recent studies have examined the linguistic behaviors of children with cleft palate. Morris (2) and Spriestersbach, Darley, and Morris (7) found cleft children to be retarded in communication skills and to have a reduction in mean sentence length when compared to their non-cleft peers. Bzoch (1) reported delay in the acquisition of early speech skills.

Studies of language development in cleft children have also been undertaken. Smith and McWilliams (6) found depression in scores on the Illinois Test of Psycholinguistic Abilities with notable deficits in encoding, both vocal and motor, and in visual memory. They also reported in a different study (5) that cleft children appeared to be less creative even on non-verbal tasks than did their peers.

Shames, Rubin, and Kramer (4) found general retardation in language usage in the pre-school years but suggested that there was an acceleration in development during the early school years to the extent that differences were eliminated in later years.

Most of the work undertaken to date has focused upon receptive-expressive abilities or upon various perceptual modalities. No studies were found which dealt with written language even though Myklebust (3) has suggested that disorders of written language may be derived from disruptions or variations in the sequence of language development. Assuming that his assumption is correct, one would expect to find some reduction in the written language abilities of children with clefts. If such deficits were not found, it would be necessary either to question Myklebust's theory, which certainly has face validity, or else question that the language deficits found in children with clefts can be classified as true language problems. They may, instead, be representative of poor performance in the presence of adequate language competencies.

This article is based on a thesis directed by Gerald Woolf, Ph.D. submitted to the Graduate Faculty of Arts and Sciences, University of Pittsburgh, in partial fulfillment of the requirements for the degree of Master of Science.

Work reported herein was supported in part by U.S. Public Health Service Grant DE-01697, National Institute of Dental Research.

Presented at the Annual Meeting of the American Cleft Palate Association, Oklahoma City, Oklahoma, May, 1973.

The purpose of this study was to compare the written language abilities, as measured by the Myklebust Picture Story Language Test (PSLT), of children with clefts with those of their non-cleft peers.

Subjects

Twenty-three children (18 males and 5 females) with palatal clefts from the Cleft Palate Center at the University of Pittsburgh and at Allegheny General Hospital were matched with 23 children (18 males and 5 females) who had no history of oral pathology or speech disorders. No child who had failed audiometric screening was accepted in the study.

The children were matched as closely as possible on a number of variables. The cleft group ranged in age from 6-10 to 8-8 with a mean of 7-7 while the control group ranged from 7-2 to 8-8 with a mean of 7-9.

All the subjects were enrolled in grades one through three. The mean grade for both cleft and non-cleft children was 1.8.

Socio-economic levels were evaluated by means of the Warner, Meeker, Eells Index (8). Mean socio-economic level for the cleft children was 4.3, while it was 3.8 for the control group, indicating perhaps a slight socio-economic advantage for the control subjects.

The children were matched also on the basis of intelligence. Information was derived from the case records in the clinics or at the school so that not all children had been evaluated by the same instrument. If test scores were not available, the Peabody Picture Vocabulary Test was administered. These scores were then grouped into three categories, average, high average, and superior. No retarded children participated. Most of the subjects in both groups appeared to be of average ability. This was true for 18 cleft subjects and for 17 controls. Two cleft children, and 3 controls had high average ability, while 3 cleft subjects and 3 controls were of superior ability.

The PSLT is a relatively simple test. A picture is shown, and subjects are asked to write a story about it. In this case, no assistance was rendered by the examiner. Whenever possible, the children were tested in small groups which were arranged to permit maximum viewing of the picture. For the sake of expediency in the clinics, it was necessary to test some children individually. However, the same general atmosphere prevailed since the children were all familiar with the clinical setting and were not there for any uncomfortable or frightening procedures.

The written protocols were then scored according to the recommended procedures. Five aspects of written language were evaluated: total number of words (TW), total number of sentences (TS), number of words per sentence (WPS), abstract-concrete relationships (A-C), and syntax quotient (SQ). These yielded measures of productivity, syntax, and abstract-concrete relationships. In order to eliminate bias in scoring, the protocols were numerically coded, combined, and scrambled so that the examiner would be unaware of the group to which an individual protocol belonged.

TABLE 1. Comparison of written language performance for cleft and non-cleft subjects.

	<i>cleft palate</i>		<i>non-cleft palate</i>		
	<i>mean</i>	<i>S.D.</i>	<i>mean</i>	<i>S.D.</i>	<i>t-values</i>
total words.....	34.6 ¹	20.46 ¹	41.70	23.38	.048 ¹
	41.0 ²	36.13 ²			.003 ²
total sentences.....	5.52	4.21	5.57	2.95	.047
words per sentence.....	7.17	2.09	7.48	1.58	.568
abstract-concrete.....	8.16	3.47	8.04	2.95	.602
syntax quotient.....	91.57	5.73	91.73	6.76	.086

¹ Based on 22 subjects (eliminating one subject with exceptionally high productivity).

² Based on 23 subjects.

Reliability

The examiner asked a graduate student in speech pathology to score five protocols from each group, and the results were compared in order to evaluate reliability. On productivity scoring, there was 100 per cent agreement. There was agreement on 9 out of 10 syntax scores (90 %), and the one disagreement was resolved according to Myklebust's "rule of the least penalty." For abstract-concrete evaluations, there was a difference of only one point on each of two scores. Inter-judge reliability was considered adequate for the examiner to score the remaining protocols independently.

Results

The cleft and non-cleft subjects appeared to be similar in their written language skills. They did not differ significantly in terms of total words used, total sentences, number of words contained in sentences, abstract-

TABLE 2. Frequency of syntax errors for the cleft palate and non-cleft palate groups.

<i>error type</i>	<i>word usage</i>		<i>error category</i>				<i>totals</i>	
	<i>cleft</i>	<i>non-cl.</i>	<i>endings</i>		<i>punctuation</i>		<i>C.</i>	<i>N.</i>
			<i>C.</i>	<i>N.</i>	<i>C.</i>	<i>N.</i>		
additions.....	19	21			2	8	21	29
omissions.....	19	16	13	4	79	80	111	100
substitutions.....	6	4	1		2	1	9	5
word order.....	2	1					2	1
totals.....	46	42	14	4	83	89	143	135

Mean Errors—Cleft 6.2

Non-Cleft 5.4

concrete relationships, or syntax quotients. These data are summarized in Table 1.

In addition, these two groups were similar when syntax errors were assessed. These data appear in Table 2. It is not surprising to find that children in this age group, cleft and non-cleft, show a preponderance of errors of omission; and punctuation is responsible for well over half of their total errors. However, the cleft subjects do not appear to be less capable in these regards than do their non-cleft peers.

Discussion

Reference to Tables 1 and 2 indicates no real differences between these cleft and non-cleft subjects on measures of written language. However, means are almost always just a bit lower for the cleft subjects than they are for the non-cleft, and standard deviations are higher. This suggests that there is slightly more variability in the performance of cleft children but that it is never enough to reach statistical significance.

Since cleft and non-cleft subjects do not appear to show real differences in written language skills and since these skills, as Myklebust suggests, are logically related to linguistic competency, we must reassess our position relative to language deficits in cleft children. While there is little doubt that their verbal performance has been found repeatedly to be inferior, there is really no evidence to suggest that their verbal expressive deficits reflect disabilities in competency. In short, they appear, in this study at least, to have accesses to words and structures which they may not call upon for purposes of verbal communication. Future studies must be addressed to questions of habitual verbal output as it relates to best possible performance. If differences are found here, the language problems of cleft children may eventually be seen as simpler in nature than they now appear to be.

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