

Oral Reading Problems in Students with Cleft Palate, Grades 6-8

Nathakarn Chokbundit BA*,
Benjamas Pratahnee PhD**

* Curriculum and Instruction in Special Education, Faculty of Education, Khon Kaen University, Khon Kaen, Thailand

** Department of Otorhinolaryngology, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

Objective: To investigate prevalence of oral reading problems in Thai language skills and types of oral reading based on articulation errors in students with cleft palate, Grades 6 to 8.

Material and Method: Thirty students with cleft palate, Grade 6 to 8 in Northeast Thailand, were recruited for the study. Each student read a standard oral reading passage, based on The Basic Education Commission of Thailand, which consists of basic words in curriculum of Thai language for Grade 4 to 6. Oral reading scores were calculated based on criteria of The Basic Education Commission of Thailand.

Results: The research findings found that prevalence of oral reading problem in students with cleft palate, Grade 6 to 8 was 16.67%; cluster was the most common problem in oral reading based on Thai language skills, followed by spelling errors, omission, repetition, missed punctuation, non-fluent reading, and addition. Oral reading types based on articulation errors were substitution 65.37%, omission 23.40%, distortion 2.25%, and addition 1.42%.

Conclusion: Students with cleft palate, Grade 6 to 8 were at risk of oral reading and early intervention was needed.

Keywords: Cleft palate, Reading problems, Reading difficulty, Type of oral reading, Prevalence

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Reading was a critical skill in searching for human's knowledge⁽¹⁾. It is also an essential index of students' learning standards. If oral reading problems is late recognized, it will become habit and be difficult to correct. There are two types of reading: oral reading and reading in mind⁽²⁾. Oral reading is a fundamental for advanced reading and a good instrument for teachers to investigate students' reading problems. In addition, oral reading is also a form of evidence to determine causes of reading problems⁽³⁾. Preliminary elements of oral reading require normal anatomy and physiology of speech organs and brain⁽⁴⁾. If there is any abnormality of a speech organ such as cleft lip or cleft palate, it can lead to speech defects or articulation errors⁽³⁾, as well as oral reading skills.

Cleft palate (CP) is a congenital fissure in the roof of the mouth, resulting from failure or incomplete fusion of the palate during embryonic development⁽⁵⁾. Cleft lip and palate (CLP) have an effect to face configuration, swallowing, dental abnormality, speech

and hearing problems⁽⁶⁾. After palate repair, children with CLP who remain abnormality of velopharyngeal function generally attempt to compensate by using speech organs, which are under or behind the velopharynx, and oral to prevent acoustic energy leakage to nose cavity. After surgery, children with cleft lip and palate still have articulation defects (88.56%), resonance abnormality (43.26%), hoarseness (19.13%) and delayed language development (16.33%)⁽⁷⁾. Children with articulation disorders generally might have oral reading and spelling problems⁽⁸⁾ which result in delayed reading and writing development⁽⁹⁾. Therefore, children with clefts have high risks in oral reading problems. The findings of Iowa, United States' study revealed that 35% of 172 students with CLP in elementary school had a moderate degree of reading disability and 17 % had severe reading disability⁽¹⁰⁾.

The objectives of this present study were to investigate prevalence of oral reading problems in Thai language skills and types of oral reading based on articulation disorders in Thai students with cleft palate, Grades 6 to 8. The findings could guide teachers and related personnel to estimate magnitude of students' oral reading problems. It is also an evidence-based information for communication with other

Correspondence to:

Prathanee B, Department of Otorhinolaryngology, Faculty of Medicine, Khon Kaen University, Khon Kaen 40002, Thailand.
Phone: +66-43-348396, Fax: +66-43-202490
E-mail: bprathanee@gmail.com

multidisciplinary team to provide appropriate teaching and develop efficiency reading skills.

Material and Method

A cross-sectional study was conducted. Participants were purposively recruited from 30 students with cleft palate (with or without cleft lip) who were studying in Grades 6 to 8 from schools located in Northeast Thailand and finished the first semester of academic year 2015. The study protocol was approved by Khon Kaen University Ethics Committee for Human Research (HE581290).

Five standard oral reading passages, based on The Basic Education Commission, Ministry of Education for students, Grade 6, were used. Each passage had approximate length of 200 words and consisted of basic words in Thai language skills for students in Grades 4 to 6. Scores were calculated based on criteria of The Basic Education Commission, Ministry of Education, Thailand as follows⁽¹⁾: 40-50 scores were very good; 30-39 scores were good; 20-29 scores were fair; and 0-19 scores were poor.

Students with cleft palate randomly selected one of five passages and performed oral reading within 5 minutes. The researcher gave the timeout signal when the time was up. Audio recordings, Samsung Grand 2, were used during the reading performance. Codes were assigned by the first research assistant. Principle investigator and the second research assistant (student in master degree of curriculum and instruction in special education and had already trained in screening the disabled education) replayed each audio recording and separately scored the oral reading based on criteria of The Basic Education Commission, Ministry of Education, Thailand. If there was any disagreement of the scoring between the researcher and the second research assistant, individual case record forms and audio recordings would be reviewed and a consensus was then made based on criteria of The Basic Education Commission, Ministry of Education, Thailand.

Analyses

Descriptive statistics were used to analyze prevalence of oral reading problems, oral reading problems in Thai language skills and types of oral reading problems based on articulation errors. Determination of oral reading was performed based on criteria of The Basic Education Commission, Ministry of Education, Thailand by using scores of ≤ 29 or $< 60\%$ of a total score (reading level: fair and poor) to indicate reading problems⁽¹⁾.

Results

Characteristics of the participating students are shown in Table 1. Table 2 displays level of oral reading in the participating students. Prevalence of the students with cleft palate, Grades 6 to 8 who had oral reading problems based on The Basic Education Commission's criteria (scores ≤ 29 or $< 60\%$ of the total score or fair and poor levels) was 16.67%.

Table 3 shows the students' oral reading problems based on the Thai Language skills. The results found that the most common error was spelling whilst the least error was an addition word.

The types of oral reading problems in the students were divided based on articulation errors as shown in Table 4. Substitution was the most common defect whilst distortion was the least defect in oral reading problems based on articulation error.

Discussion

Prevalence of oral reading problems in children with cleft palate from this present study was lower than in previous study that found 52% of primary students had reading difficulty⁽¹⁰⁾: 35% of them had a moderate level of reading difficulty and 17% had a severe or poor level of reading difficulty. These differences might result from the criteria of determination in oral reading problems. The previous study used a score of $< 80\%$ of a total score as having oral reading problems whilst this present study used scores of ≤ 29 or $< 60\%$ of a total score based on criteria of The Basic Education Commission, Ministry of Education, Thailand⁽¹⁾. If this present study used the same criteria ($< 80\%$), the prevalence would increase to 43.33%.

A survey by the Ministry of Education, Thailand, in 2015 found the prevalence of oral reading problems in normal students, Grade 6 was 2.6%⁽¹²⁾. It clearly presented that students with cleft palate, Grade 6 to 8 had higher oral reading difficulty than normal students (16.67% versus 2.6%). The prevalence of oral reading problems in the students with CP was higher than normal students although surgery correction was performed in early periods (cheiloplasty at three months and palatoplasty at one year). Students with CP still have high rates of oral reading problems, of which possible reasons may include: 1) They still have articulation defects from velopharyngeal insufficiency (VPI)⁽⁷⁾ or a habitual speech pattern that result in abnormal speech and oral reading problems; 2) Some children with cleft palate could not access speech services due to limitations of speech therapy and number of speech and language

Table 1. Characteristics of students with cleft palate, Grades 6-8

No.	Age	Gender		Grade			Diagnosis
		Boy	Girl	G.6	G.7	G.8	
1	13	✓		✓			CLP
2	11	✓		✓			CLP
3	11		✓	✓			CP
4	13	✓				✓	CLP
5	12	✓			✓		CLP
6	11	✓				✓	CP
7	11	✓				✓	CLP
8	12		✓		✓		CLP
9	13	✓				✓	CLP
10	13	✓			✓		CLP
11	12	✓			✓		CLP
12	11	✓		✓			CLP
13	11		✓	✓			CLP
14	11		✓	✓			CLP
15	12		✓			✓	CP
16	11		✓	✓			CLP
17	12		✓		✓		CLP
18	12		✓		✓		CLP
19	12		✓	✓			CP
20	12		✓		✓		CLP
21	13	✓				✓	CLP
22	12		✓	✓			CLP
23	13		✓		✓		CP
24	13		✓			✓	CP
25	12	✓			✓		CLP
26	11		✓	✓			CLP
27	12	✓			✓		CLP
28	13	✓			✓		CLP
29	11		✓	✓			CLP
30	13	✓				✓	CLP
Total		15	15	11	11	8	

CLP = Cleft lip and palate; CP = Cleft palate

Table 2. Number of the students with cleft palate, grouped by level of oral reading

Level of oral reading	Total	Percentage
Very good	17	56.67
Good	8	26.66
Fair	3	10.00
Poor	2	6.67
Total	30	100.00

pathologists⁽¹³⁻¹⁵⁾. Therefore, accessibility of speech services in Thailand would be one of the critical health care services that needs to be developed in

order to provide speech therapy on time (before the patient's age of seven years) for prevention of oral reading problems and articulation errors in children with cleft palate.

In responses to the results of the survey, the Basic Education Office, Ministry of Education established a project to help students in primary school who have reading difficulties (Project entitled "No students with illiteracy in 2015"). One month following the intervention, it was found that the prevalence of reading difficulties decreased to 1.4%⁽¹²⁾. Therefore, cooperation among teachers and health care providers, particularly speech and language pathologists, should be established in order to improve

Table 3. The students' reading problems based on Thai Language skills categorized by groups

Category	Reading incorrect	Percentage	Order of problems
Spelling error	842	60.40	1
Omission word	334	23.96	2
Repetition word	68	4.88	3
Miss punctuation	67	4.80	4
Non-fluent read	44	3.16	5
Addition word	39	2.80	6
Total	1,394	100.00	-

Table 4. Types of oral reading based on articulation errors

Types of oral reading	Number of word errors	Percentage
Substitution	553	65.37
Omission	198	23.40
Addition	19	2.25
Distortion	12	1.42
Error word	64	7.56
Total	846	100.00

the oral reading skills early and obtain educational achievement for children with cleft palate.

From our present study, in regard to Thai language skills, cluster words were the most common oral reading problems (60.40%) in students with cleft palate. This is similar to the findings from the study conducted in normal students, in which the cluster word was the most frequent reading difficulty (80.53%)⁽¹⁶⁾. Both normal students and students with CP mostly omitted /r/, /l/, which are the second consonants. Therefore, teachers should focus on the correction for cluster words. During our data collection, the students skipped or omitted words and quickly read when they could not read those words. The students sometimes quickly read and swept across some words then repeated the word because they were not sure that they had read it correctly. It is possible that they might not pay attention to punctuation or made incorrect punctuation when they read long sentences or passages. These might be because of rapid eye movement or they did not understand the meaning of vocabulary, or lack of reading practices⁽¹⁷⁾. Teachers should identify students' weak and strong reading points for planning to increase oral reading skills and also should focus on the understanding in

the meaning of each word, paying attention to each word, and reading prosody to solve oral reading problems.

For the oral reading problems that are based on articulation errors, the most common type was substitution. Students with CP have the most difficulty in pronouncing /r/ and mostly produce /l/ to substitute /r/. These support the previous finding that articulation errors in /r/ and /s/ were common errors in children with CLP⁽¹⁸⁾. In our present study the students with cleft palates who got scores of reading in fair and poor levels usually produced sounds under velopharyngeal closure or back placement substituted oral sounds such as /ʔ/ for /s/, /t/, or /k/, and nasal sounds for oral sounds such as /m/ for /b/. These findings agreed with the previous study that found children with cleft palate mostly compensate to produce sounds under or behind velopharyngeal closure for oral sounds⁽¹⁹⁾.

For implication and suggestions, the prevalence of oral reading problems in children with clefts was high in oral reading. Therefore, teachers should focus on and detect most common types of problems, e.g., cluster and pronunciation /r/ and /l/. Teachers should also provide activities to promote oral reading skills, such as reading or singing contests in order to encourage the students to practice reading skills. Further study should establish programs for oral reading stimulation and practicing, particularly for children with CP who are at risk of oral reading problems.

Conclusion

The prevalence of oral reading problems in students with cleft palate, Grades 6 to 8, was 16.67%. A cluster word was the most common error in Thai language skills and substitution was the most common type based on articulation types. Early detection and intervention are needed.

What is already known on this topic?

Children with cleft palate have abnormality in oral facial structure that cause speech defects.

What this study adds?

Students with cleft palate had high risk of oral reading problems and need early screening and intervention to solve the problems and achieve higher education.

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Potential conflicts of interest

None.

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ความชุกและปัญหาการอ่านออกเสียงของนักเรียนที่มีภาวะเพดานโหว่ระดับประถมศึกษาปีที่ 6 ถึง มัธยมศึกษาปีที่ 2

ณัฐกานต์ โทลบัณฑิต, เบญจมาศ พระธานี

วัตถุประสงค์: เพื่อศึกษาความชุก ปัญหาการอ่านออกเสียงตามหลักภาษาไทย และประเภทของปัญหาในการอ่านออกเสียงตามลักษณะการพูดไม่ชัด ของนักเรียนที่มีภาวะเพดานโหว่ในระดับประถมศึกษาปีที่ 6 ถึง มัธยมศึกษาปีที่ 2

วัสดุและวิธีการ: นักเรียนที่มีภาวะเพดานโหว่ที่ศึกษาอยู่ในระดับประถมศึกษาปีที่ 6 ถึง มัธยมศึกษาปีที่ 2 ในในภาคตะวันออกเฉียงเหนือ ประเทศไทย จำนวน 30 คน เป็นกลุ่มตัวอย่างของการศึกษานี้ นักเรียนแต่ละคนอ่านบทความมาตรฐานของสำนักงานคณะกรรมการการศึกษาขั้นพื้นฐานของประเทศไทย ซึ่งเป็นบทความที่ประกอบด้วยคำในบัญชีคำพื้นฐานสำหรับระดับชั้นประถมศึกษาปีที่ 4-6 การให้คะแนนการอ่านออกเสียง ทำตามหลักเกณฑ์ของสำนักงานคณะกรรมการการศึกษาขั้นพื้นฐานของประเทศไทย

ผลการศึกษา: ความชุกของปัญหาการอ่านออกเสียงของนักเรียนที่มีภาวะเพดานโหว่มีร้อยละ 16.67 คำควบกล้ำเป็นปัญหาการอ่านออกเสียงตามหลักภาษาไทยที่พบมากที่สุด รองลงมาคือ การอ่านสะกดคำผิด อ่านข้ามคำ หรือละไม่อ่านคำ อ่านซ้ำคำ อ่านไม่ถูกวรรคตอน อ่านไม่คล่องแคล่ว ลังเล และอ่านเพิ่มคำ ประเภทของปัญหาในการอ่านออกเสียงตามลักษณะการพูดออกเสียงไม่ชัดที่พบคือ การอ่านออกเสียงแบบแทนที่ร้อยละ 65.37 การอ่านละไม่ออกเสียงร้อยละ 23.40 การอ่านออกเสียงแบบเสียงผิดเพี้ยนร้อยละ 2.25 การอ่านออกเสียงแบบเดิมเสียงเข้าไปในคำร้อยละ 1.42

สรุป: นักเรียนที่มีภาวะเพดานโหว่ระดับประถมศึกษาปีที่ 6 ถึง มัธยมศึกษาปีที่ 2 มีความเสี่ยงต่อปัญหาการอ่านและจำเป็นต้องดำเนินการช่วยเหลือตั้งแต่นั้นๆ
