Logopedics Phoniatrics Vocology

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/ilog20

Does the narrative ability during retelling differ in 5-year-olds born with and without unilateral cleft lip and palate?

Ketty Andersson & Kristina Klintö

To cite this article: Ketty Andersson & Kristina Klintö (2020): Does the narrative ability during retelling differ in 5-year-olds born with and without unilateral cleft lip and palate?, Logopedics Phoniatrics Vocology, DOI: 10.1080/14015439.2020.1822441

To link to this article: https://doi.org/10.1080/14015439.2020.1822441

Published online: 14 Oct 2020.

LOGOPEDICS PHONIATRICS VOCOLOGY
https://doi.org/10.1080/14015439.2020.1822441

Taylor & Francis
Taylor & Francis Group

ARTICLE

Does the narrative ability during retelling differ in 5-year-olds born with and without unilateral cleft lip and palate?

Ketty Andersson[a] and Kristina Klintö[b,c]

[a]Department of Clinical Sciences in Lund, Division of Logopedics, Phoniatrics and Audiology, Lund University, Lund, Sweden; [b]Department of Otorhinolaryngology, Division of Speech and Language Pathology, Skåne University Hospital, Malmö, Sweden; [c]Department of Clinical Sciences in Malmö, Division of Surgery, Lund University, Lund, Sweden

ABSTRACT

Background: A previous study has indicated poorer narrative ability during retelling in 5-year-olds with unilateral cleft lip and palate (UCLP) as a group, compared to peers without UCLP.
Aim: To investigate if there are any differences between 5-year-olds with and without UCLP in narrative ability during retelling.
Methods: A total of 83 children participated, 51 with UCLP and 32 without. They had no known additional malformations or syndromes. The children were audio recorded while performing the Bus Story Test (BST). The recordings were orthographically transcribed. From the transcriptions the BST information score was calculated. The macrostructure of the narratives was assessed with the Narrative Scoring Scheme (NSS), and the microstructure with mean length of utterance in words, grammaticality, grammatical complexity and lexical diversity. Results for children with and without UCLP were compared.
Results: The group with UCLP performed better than the group without UCLP in the NSS sub-category Conclusion. No other significant differences were seen between the groups. The UCLP group had a larger standard deviation for the information score than the group without UCLP.
Conclusions: The group with UCLP displayed at least as good results as the group without UCLP, but the information score was more varied for the UCLP group than for the group without UCLP.

ARTICLE HISTORY
Received 14 May 2020
Revised 21 August 2020
Accepted 7 September 2020

KEYWORDS
Cleft lip and palate; narrative ability; narrative scoring scheme; narrative microstructure

Introduction

Narrative ability is important for the development of textual understanding and text production and is therefore a predictor of future school results [1]. Narrative ability is also important for building relationships, since the ability to describe events one has experienced, to exchange experiences and to joke is one of the cornerstones of social acceptance and group affiliation [2,3]. To our knowledge, only one study has been published on narrative ability in preschool children with cleft lip and palate (CLP) [4]. Klintö et al. [4] studied the ability to retell a narrative in 29 5-year-olds with unilateral cleft lip and palate (UCLP) and 20 peers without UCLP. As a group, the children born with UCLP had more difficulties to retell information than children without UCLP. The authors concluded that studies on larger groups of children were needed to verify any differences in the retelling ability between children with and without UCLP, and to estimate the magnitude of such differences.

Children with CLP form a heterogeneous group, with some children having difficulties with expressive language, and others not [5]. In several studies, the results have indicated limited expressive language in children with CLP as a group up to 3 years of age compared to non-cleft peers [6–10]. However, in children aged 3 to 6 years, the results have varied in different studies [4,11–14]. In a study by Cavalheiro et al. [11], 30 children with non-syndromic CLP, aged 3 to 4 years, had significantly poorer receptive and expressive language skills than children without CLP, matched to chronological age and gender. Young et al. [15] demonstrated difficulties in the expressive use of grammar and vocabulary (below the 20th percentile on a standardized screening tool) in about one-third of 43 children with cleft lip and/or palate between approximately 4 and 7 years of age. However, Chapman [13] and Collett et al. [12] found no significant differences between 5- and 6-year-olds with and without cleft palate regarding expressive vocabulary and grammatical skills, and in a study of 12 6-year-olds with UCLP, vocabulary and syntactic skills were within the normal range [14].

Narratives can be elicited in several different ways and consideration must be given to the child's age and maturity when designing the task. For a 5-year-old, it is difficult to

CONTACT Ketty Andersson ketty.andersson@med.lu.se Department of Clinical Sciences in Lund, Division of Logopedics, Phoniatrics and Audiology, Lund University, Lund, Sweden

produce a new story [16]. For this age-group a retelling task may be more appropriate [1,17]. Although narrative ability continues to develop throughout the life span, development after 5 years of age mostly concerns refinement, for example, production of gradually longer and more elaborated stories, with subthemes and descriptions. Reproducing a narrative, in order for a listener to understand, requires many linguistic, cognitive and social abilities. The story genre uses elements from both spoken and written language and is therefore more challenging than conversation. Reproducing narratives requires expressive linguistic abilities that are necessary for conversation, such as word and grammatical knowledge, and also knowledge of the outside world, the ability to combine sentences, and pragmatic ability to take the listener's perspective and adapt the story to the listener's prior knowledge [16]. Ability to produce complex syntax and to organise and sequence the language in accordance with the narrative structure is also required, and these abilities must be handled simultaneously [2]. Assessment of the ability to retell also gives a detailed picture of how the child functions in a preschool setting, as it requires short-term memory and listening comprehension, and thus simulates the type of language exchange that takes place in preschool activities [18].

A retelling task usually generates longer statements than a free narrative task, which results in the child's narrative ability not being underestimated due to insufficient data [1]. The Bus Story Test (BST) is a standardized retelling task, predominantly used for screening purposes, where the child is asked to retell the story with the aid of 12 colour images [19]. Based on the reproduced information, the child achieves an information score. Mean length of utterance (MLU) and the number of subordinate clauses may also be assessed. The BST has been translated into Swedish and normative data from 100 Swedish-speaking children, between the ages of 3;9 and 6;8, is available [20]. Klintö et al. [4] used the BST to compare MLU and the number of subordinate clauses between 5-year-olds with and without UCLP and found no differences between groups.

Analysis of narratives can be done either at macro level, looking at global structures and complex cognitive abilities, or at micro level, looking at local structures or language internal knowledge [2]. At the macro level, a functional analysis is made, of how the words are organised and interact with an overall structure. The narrative scoring scheme (NSS) is an assessment matrix for narratives at the macro level, which aims to measure the ability to produce a coherent story [21]. NSS is applied to an existing story in order to analyse strengths and weaknesses from a holistic perspective in the child's story. NSS is a further development of Stein and Glenn's [22] story grammar model, where assessment is made of how well the narrative structure and content is organised with introduction, sequencing of events and conclusion. NSS has been considered a reliable tool for analysing the child's overall narrative competence [21]. Analysis at the micro level may assess grammatical development, such as MLU and grammatical complexity [23] and lexical knowledge, such as lexical diversity and density [24]. These measures have often been used in diagnosing developmental language disorder in several languages (for Swedish, see for example [25,26]). Microstructural measures, sensitive to language vulnerability and often used in research include MLU, lexical diversity, grammatical complexity, and grammaticality [17]. These measures may therefore be of special interest to investigate in children with UCLP.

Aims

In this extended study, with more participants than in the study by Klintö et al. [4], we wanted to investigate if there actually are any differences between 5-year-olds with and without UCLP in narrative ability when retelling. The research questions were:

1. Does the narrative ability during retelling differ between 5-year-olds with and without UCLP, in terms of the information score according to the BST manual?
2. Does the narrative ability during retelling differ between 5-year-olds with and without UCLP, in the seven subcategories and the total score of NSS?
3. Does the narrative ability during retelling differ between 5-year-olds with and without UCLP, in terms of the microstructural measures MLU in words (MLUw), grammaticality (GY), grammatical complexity (SI) and lexical diversity (MATTR)?

Methods

This was a prospective comparative study of 5-year old children with UCLP and peers without UCLP.

Participants

A total of 83 children participated, 51 (34 boys; 17 girls) with complete UCLP and 32 (13 boys; 19 girls) without UCLP. In a power calculation based on the results from Klintö et al. [4] with the alpha level set to 0.05 and power to 0.8, the suggested number of participants in each group was 37. The children were native Swedish speakers and had no known additional malformations or syndromes. The children with UCLP were participants in a national inter-centre study [27], and consisted of six consecutive groups of children born between 2008 and 2010, recruited from the six Swedish CLP centres. Of the 57 eligible children in the inter-centre study, six children had not completed the narrative task, and were excluded in the present study. Of the 51 remaining children with UCLP, a total of 31 children had additional contact with a speech-language pathologist (SLP), five due to language impairment including phonological disorder, and 26 due to articulation problems. Eight children with UCLP had unilateral hearing impairment ($>$ 20 dB hearing threshold level) at the day of assessment, and six had bilateral hearing impairment.

The group without UCLP were born between 2012 and 2013, and recruited from pre-schools in a municipality in

southern Sweden, with mixed socio-economic status. A total of 39 children were recruited in accordance with the power calculation. Children without UCLP with neuropsychiatric diagnoses (one child) or language impairment (two children) were excluded. In addition, four children were excluded since they did not participate in the retelling task. Of the children without UCLP, three had a unilateral hearing impairment (> 20 dB hearing threshold level) at the day of assessment, and the remaining children had normal hearing. In total, 32 children were included in this study.

Ethical approval

The participation of the children with UCLP was approved by the Regional Ethical Review Board of Stockholm (Dnr 2012/1991–31/3). Enrolment of the children without UCLP was approved by the Regional Ethical Review Board of Lund (Dnr 2017/899). All parents had given written informed consent for participation.

Recording procedure

For all children, documentation was performed at 5 years (± 3 months) of age. The children with UCLP were audio recorded by an SLP at a mean age of 5 years and 1 month, in a quiet room at one of the University Hospitals participating in the study. The children's speech was documented with an audio recorder (Zoom H4n, Hauppauge, NY, United States; TASCAM HD-P2, Montebello, California) or a PC with Soundswell software (SavenHitech, Stockholm, Sweden). All children with UCLP were recorded with a condenser microphone (Røde NT4, Sydney, Australia; Sony ECM-MS957, Tokyo, Japan; Pearl CC3, Åstorp, Sweden). They first performed a single word test by picture naming and sentence repetition [28], and then retold the Bus Story [19,20] within the same session. Hearing was tested separately the same day. The children without UCLP were audio recorded by an SLP student at a mean age of 4 years and 11 months, with an audio recorder (Zoom H4n, Hauppauge, NY, United States) in a quiet room at the pre-school. The children without UCLP performed a hearing screening and retold the Bus Story [19,20] within the same session.

Orthographic transcription

The two transcribers (SLP students) had no previous clinical experience of cleft palate speech. For two days, prior to transcription, they trained orthographic transcription of recordings with children with UCLP, not included in the study, retelling the Bus Story [19,20]. The second author, a researcher and SLP specialized in CLP, gave feedback and checked the transcripts. The training was completed when the students were able to independently perform a transcription and the results were in line with those of the second author.

The transcription was performed with headphones, in a quiet room. The transcriptions were randomized so that the children's group affiliation would be unknown to the transcribers when analysing the transcripts. One transcriber transcribed the recordings of 25 children with UCLP and 16 children without UCLP, and the other the recordings of 26 children with UCLP and 16 without UCLP. For children with unintelligible speech, all belonging to the UCLP group, consensus transcription was performed.

Assessment of information score

Consensus assessment of information score was carried out by the SLP students, according to the manual of the BST [19,20]. A total of 54 points could be awarded. Two points were awarded for each information unit if both the referent and the event were included in the child's utterance. One point was awarded for incomplete information and no points for missing information. According to the English manual, score deduction should be made each time the child does not clarify the pronoun referent [19]. In the Swedish norms, score deductions were instead given each time the referee was missing [20]. The guidelines in the Swedish norms were followed regarding missing referees. The manual does not fully clarify how mistakes in the order of events should be scored. In this study, no scores were given when information units were told in the wrong order, although both units were within the same utterance. However, scores were given if the child made self-corrections in the right order.

Narrative scoring scheme (NSS)

The NSS consists of seven subscales; Introduction, Character development, Mental states, Referencing, Conflict resolution, Cohesion and Conclusion [21]. It was translated into Swedish by the two SLP students and the first author, and adapted to the Bus Story [19,20]. It was emphasized that the Swedish version would be comparable to the official English example matrices regarding assessment criteria with scaled scoring of 0–5 where 5 reflects high proficiency, 1 for immature or minimal information and 0 for errors, i.e. information not related to the context [21]. Adaptation of NSS was required for use with the Bus Story. For example, in the original version of the NSS, an introduction to the story was required, such as "Once upon a time". In the Bus Story, the test leader gives the introduction as a prompt to the children to begin their story, which is why this could not be assessed. Assessment of intonation and pausing was also excluded, as this cannot be assessed based on orthographic transcriptions, which were used for analysis in this study. NSS was also specifically adapted to the Bus Story in order to simplify and increase the reliability of the assessment. All information units in the Bus Story were identified and compared with the criteria for the NSS categories, to ensure correct classification, and clear definitions for scoring were designed.

Table 1. Comparison of information score in the Bus Story Test between the group with unilateral cleft lip and palate (UCLP) and the comparison group without UCLP (COMP) (Mann–Whitney U test and Cohen's d).

Information Score	UCLP $n = 51$	COMP $n = 32$	U	p	d
M (SD)	22 (8.563)	20.22 (8.071)	726.5	.402	0.185
Md (range)	22 (3–39)	20.50 (5–34)			
CI 95%	19.59–24.41	17.31–23.13			

Md: median; M: mean; SD: standard deviation; CI: confidence interval; d: effect size.

Assessment of microstructure

The orthographically transcribed narratives were coded in accordance with the Systematic Analysis of Language Transcripts (SALT) guidelines and all microstructural measures were taken from the Standard report, generated in SALT [23]. Sentence length was calculated with MLUw. Abandoned utterances, a common phenomenon in oral discourse and narratives, were not included. Abandoned utterances occurred in 28 of the 83 transcripts and were as expected present in both groups. GY was calculated as the percentage of utterances with grammatical errors by dividing the number of incorrect C-units (a main clause with all subordinate clauses attached to it) by the total number of C-units. Grammatical complexity was operationalized as a subordination index (SI), where the number of all clauses, both main and subordinated, was divided by the number of C-units. A higher number indicates more complex syntax. Finally, lexical diversity was calculated with a moving average type-token ratio (MATTR), in which the average type-token ratio from several subsamples of the transcript is calculated. All calculations were conducted in SALT 2018 Research Version.

Agreement

Intra and inter transcriber agreement was calculated on randomly selected transcriptions corresponding to 30% of the material. In these transcriptions, conjunctions, prepositions, definite articles and differences in tempus were excluded when it was attributed to the transcribers choice of word (when a child says /o/ it can either mean the infinitive marker "att", in English "to", or the conjunction "och", in English "and"). The words that matched within and between the transcribers were counted and compared to the total number of words. Intra transcriber agreement was 99.2% and 97.7%, respectively, and the inter transcriber agreement was 97%.

Statistical analysis

Mann Whitney U test was used for statistical analysis. For each NSS category, and for the total score of NSS, Bonferroni correction was performed to avoid type-1 errors in multiple comparisons, and the new alpha value was set to $0.05/8 = p = .006$. The information score was considered a separate assessment, thus, no Bonferroni correction was made for this parameter. A similar Bonferroni correction was made for the microstructural measures; $0.05/4 = 0.0125$. Effect size was examined with Cohen's d using the U-value for calculation [29], and an effect size of 0.2 was considered low, 0.5 medium and 0.8 large [30].

Table 2. Comparison of the Narrative Scoring Scheme (NSS) between the group with unilateral cleft lip and palate (UCLP) and the comparison group without cleft palate (COMP) (Mann–Whitney U test and Cohen's d).

NSS		UCLP $n = 51$	COMP $n = 32$	U	p	d
Introduction	M (SD)	2.92 (1.41)	3.13 (1.52)	761.5	.602	0.112
	CI 95%	2.52–3.32	2.58–3.67			
Character development	M (SD)	2.63 (1.00)	2.69 (1.09)	808.0	.937	0.016
	CI 95%	2.35–2.91	2.29–3.08			
Mental states	M (SD)	2.47 (1.47)	1.88 (1.24)	633.0	.079	0.383
	CI 95%	2.06–2.89	1.43–2.32			
Referencing	M (SD)	2.82 (1.23)	2.66 (1.41)	766.5	.634	0.102
	CI 95%	2.48–3.17	2.15–3.16			
Conflict resolution	M (SD)	3.12 (1.23)	2.69 (1.06)	688.5	.213	0.264
	CI 95%	2.77–3.46	2.31–3.07			
Cohesion	M (SD)	2.47 (1.21)	2.31 (1.26)	784.0	.758	0.066
	CI 95%	2.13–2.81	1.86–2.77			
Conclusion	M (SD)	2.80 (1.31)	1.84 (1.25)	493.5	.002*	0.702
	CI 95%	2.43–3.17	1.39–2.29			
Total	M (SD)	19.24 (6.82)	17.19 (6.87)	704.0	.294	0.232
	CI 95%	17.32–21.15	14.71–19.66			

M: mean; SD: standard deviation; CI: confidence interval; d: effect size.
*$p < .05 = < .006$ with Bonferroni correction.

Results

No significant difference was seen between the groups with and without UCLP regarding the BST information score and the effect size was low (Table 1). The median was higher and the range was somewhat larger in the UCLP group than in the group without UCLP.

In Table 2 the results of NSS are presented. The UCLP group had significantly better results than the group without UCLP for the category Conclusion, with a medium effect size. For Mental states, the effect size was low, with better results in the UCLP group, but there was no statistically verified difference between the groups. The mean values of the categories Mental states and Conflict resolution were higher in the UCLP group, and they were higher than the other group's CIs (95%).

No significant differences were seen between the groups with and without UCLP on any microstructural measure (see Table 3). The children without UCLP had a slightly higher mean for MLUw but with a greater standard deviation, only indicating somewhat higher variability within the group. For GY and MATTR, the groups' results were almost identical.

All analyses were performed once more, after exclusion of 15 children with UCLP who had hearing impairment and/or had undergone speech-language therapy due to language impairment, and three children without UCLP with hearing impairment. No notable differences were seen in the information score. For NSS, the results improved slightly for the UCLP group compared to the group without UCLP regarding the category Conflict resolution (UCLP group: $n = 36$ children, Mean = 3.33, SD = 1.195; Control group: $n = 29$ children, Mean = 2.69, SD = 1.039; $U = 389.5$, $p = .069$, $d = 0.44$), but the difference was still not significant. For the microstructural measures, the results were similar to the original comparisons, with p-values ranging the lowest for MLUw, $p = .48$ to the

Table 3. Comparison of microstructural measures between the group with unilateral cleft lip and palate (UCLP) and the comparison group without cleft palate (COMP) (Mann–Whitney U test and Cohen's d).

NSS		UCLP $n = 51$	COMP $n = 32$	U	p	d
MLUw	M (SD)	6.00 (1.36)	6.28 (1.46)	689.00	.24	0.26
	CI 95%	5.62–6.38	5.75–6.81			
MATTR	M (SD)	0.63 (0.07)	0.62 (0.09)	767.50	.65	0.10
	CI 95%	0.60–0.65	0.59–0.65			
SI	M (SD)	1.02 (0.21)	0.97 (0.30)	801.50	.89	0.03
	CI 95%	0.96–1.09	0.86–1.08			
GY	M (SD)	0.13 (0.11)	0.13 (0.10)	769.00	.66	0.097
	CI 95%	0.10–0.16	0.09–0.17			

M: mean; SD: standard deviation; CI: confidence interval; d: effect size.

highest for MATTR, $p = .88$ and confidence intervals overlapping extensively for both groups, Table 3.

Discussion

The aim of this study was to investigate if there were any differences between 5-year-olds with and without UCLP in narrative ability during retelling. Children with known additional malformations or syndromes were excluded from the study. For the BST information score, no significant difference was seen between the groups with 5-year-olds with and without UCLP. Consequently, although using the exact same scoring procedure from the BST, the indications of poorer ability of retelling information seen in the study by Klintö et al. [4] in 5-year-olds with UCLP compared to peers without UCLP, were not verified in the present study with more participants than the previous study. The UCLP group had a somewhat larger standard deviation for the information score than the group without UCLP, which was expected [4]. Regarding macro structure, the group with UCLP performed better than the group without UCLP in the NSS sub-category Conclusion. No other significant differences were seen between the groups. On all microstructural measures the groups performed on par. Thus, there were no indications of poorer narrative ability during retelling in the UCLP group.

In the group without UCLP, children with diagnosed language impairment were excluded, whereas five children with diagnosed language impairment were included in the UCLP group. Furthermore, 14 children with UCLP had a hearing impairment at the day of assessment, compared to three children in the group without UCLP. Thus, the there was a higher incidence of possible negatively influencing variables in the UCLP group. When a total of 18 children from both groups who had hearing impairment and/or had undergone speech and language therapy due to language impairment were excluded, no significant changes were seen in the results for the BST information score or the micro- and macrostructural measures. Six (11%) of the children in the UCLP group, and four (11%) of the children in the group without UCLP, did not complete the retelling task. We do not know why these children did not complete the task. It could be that they found the task difficult, or that they just felt uncomfortable with the test situation. We therefore do not know how it may have affected the results if they had completed the task.

Several studies have indicated limited expressive language in children with CLP as a group up to 3 years of age compared to children without CLP [6–10]. Regarding expressive vocabulary, early lexical selectivity, i.e. a preference for words that are easier to articulate for the individual child, may explain the restricted vocabulary in many children with CLP [31]. Furthermore, MLU have been found to be significantly poorer in children with CLP than in non-cleft peers [32]. Differences in MLU could be attributed to age, with greater differences between younger children with and without CLP [32] than in older children. The results from a previous study indicated poorer overall narrative retelling ability in 5-year-olds with UCLP than in peers without UCLP [4]. However the results of the present study are not surprising, since linguistic ability at age 3 to 6 years have varied in different studies and might be influenced by many different factors, and not only by CLP status [4,11–14].

Recently, two studies on linguistic ability in 10-year-olds with CLP have been published [33,34]. In a study by Boyce et al. [33], a total of 37 participants with non-syndromic orofacial clefts, aged 7; 1–14; 1 years, were matched to 129 non-cleft peers regarding age, gender and maternal education. No significant differences were seen in expressive and receptive language skills. According to Saervold et al. [34], 123 10-year-olds with non-syndromic CP, without developmental or attention difficulties, displayed scores regarding sentence recall, serial recall, and vocabulary within normal ranges. Speech problems in children with CLP as a group decrease with increasing age [35], and it may be that in non-syndromic children with CLP, scores on linguistic tests normalizes as speech normalizes. Also, it may be that studies of younger children with CLP have included children with undiscovered neuropsychiatric diagnoses, and/or syndromes, affecting the results at group level [36]. With increasing age such problems get more apparent, and then it is more likely that these children are excluded from the studies.

In the present study, the test situation differed for the two groups, and it cannot be ruled out that the different settings affected the results. A CLP team SLP tested the children with UCLP at the university hospital, and a SLP student tested the children without UCLP at the child's preschool. Although the children with UCLP in most cases had not met the SLP since 3 years of age, they were not unfamiliar to the test situation and they were accompanied by at least one caregiver. They performed a single word test by picture naming and sentence repetition [28] before the retelling task, which may have functioned as a warm-up. The children without UCLP met one SLP student in a separate room at the pre-school, without any caregivers present. They performed a hearing screening before the retelling task, but no other tasks were introduced to the children. On the other hand, the children without UCLP were more familiar with the preschool environment than the children with UCLP were with the hospital environment.

The children with UCLP were participants in a longitudinal inter-centre study with the primary purpose of evaluating speech, and the guidelines of the BST manual [19,20]

were in some cases not followed strictly. The SLP students who tested the children without UCLP followed the BST manual strictly. Sometimes the SLPs gave prompts or direct questions during testing to the children with UCLP, which may have made them more talkative than the children without UCLP. On the other hand, points should not be given for answers to direct questions according to the manual, which led to several point deductions for the UCLP group. Thus, it is impossible to conclude if and how the different settings and test situations affected the results of the two groups.

The BST information score is largely based on literal reproduction [19,20], which may in some cases make the result somewhat misleading. The children did not get the instruction to report verbatim, and those who made their own formulations or simplifications, or in other ways changed the linguistic form, received lower scores, which not necessarily corresponded to a lower narrative ability. Furthermore, a high information score could be a result of the child's capacity to remember exactly the test leader's utterances, and not necessarily correspond to good narrative ability. On the other hand, it is difficult for a child to repeat linguistic structures that it does not master [37,38].

The strength with NSS [21] is that it can be adapted and applied to several different stories in different contexts. However, NSS places some demands on the basic story to reach its full potential. A longer story than the Bus Story [19], with more nuances, where the child is given greater opportunity to use and describe with their own words and not just repeat what has been said, would give a more detailed picture of the child's narrative ability. In this study, assessment of intonation and pausing was excluded from the NSS [21], since these parameters cannot be analysed from orthographic transcriptions. It would have been beneficial to assess these parameters, and also non-verbal ability such as body language and gestures, as the narrative ability, like conversation, also includes pragmatic skills. By assessing additional parameters, a more comprehensive analysis of the child's strengths and weaknesses in the narrative situation could have been performed.

To summarize, the group of 5-year-olds with UCLP displayed at least as good results regarding narrative ability in retelling as peers without UCLP, with large variation in both groups, however with a slightly greater variation in the UCLP group. Children with CLP are a heterogeneous group, and it would therefore be more adequate to examine narrative ability in possible subgroups that exist within the CLP group, with additional problems, such as hearing impairment or neuropsychiatric diagnoses, compared to matched groups of children without CLP.

Conclusion

In this study, the 5-year-olds with UCLP without known additional malformations or syndromes performed better than the 5-year-olds without UCLP in the NSS sub-category Conclusion. No other significant differences regarding narrative ability during retelling were seen. Thus, the group with UCLP had at least as good results as the group without UCLP. The UCLP group had a larger standard deviation for the information score than the group without UCLP, and in future studies narrative ability in possible subgroups with additional problems that exist within the CLP group should be investigated, compared to matched groups of children without CLP.

Acknowledgements

The authors are grateful to all the SLPs who performed the assessments and documented the children's speech and to Theresa Dahlström and Lovisa Olsson who performed ortographic transcriptions and analysis.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

Ketty Andersson is a researcher in Speech-Language Therapy at Lund University, Sweden. Her main research interest is lexical and narrative abilities in children with developmental language disorder. She was responsible for statistical calculations and results.

Kristina Klintö is a speech-language pathologist, PhD and clinical lecturer at Lund University and Skåne University Hospital, Sweden. She is also a project manager for the Swedish Quality Register for Cleft Lip and Palate. Her main research interest is speech and language in children born with cleft lip and palate and methodology for evaluation of cleft palate speech. She wrote the first draft of the manuscript.

ORCID

Kristina Klintö http://orcid.org/0000-0002-7044-9386

References

[1] Reese E, Sparks A, Suggate S. Assessing children's narratives. In: Hoff E, editor. Research methods in child language a practical guide (pp. 133–148). Chichester, West Sussex: Wiley-Blackwell; 2012.

[2] Berman R. On the ability to relate events in narrative. Discourse Processes. 1988;11(4):469–497.

[3] Nippold MA. Later language development: school-age children, adolescents, and young adults. Austin, TX: Pro Ed; 2016.

[4] Klintö K, Salameh EK, Lohmander A. Verbal competence in narrative retelling in 5-year-olds with unilateral cleft lip and palate. Int J Lang Commun Disord. 2015;50(1):119–128.

[5] Hardin-Jones M, Chapman KL. Cognitive and language issues associated with cleft lip and palate. Semin Speech Lang. 2011; 32(2):127–140.

[6] Hardin-Jones M, Chapman KL. Early lexical characteristics of toddlers with cleft lip and palate. Cleft Palate Craniofac J. 2014; 51(6):622–631.

[7] Scherer NJ, D'Antonio LL. Parent questionnaire for screening early language development in children with cleft palate. Cleft Palate Craniofac J. 1995;32(1):7–13.

[8] Jocelyn LJ, Penko MA, Rode HL. Cognition, communication, and hearing in young children with cleft lip and palate and in control children: a longitudinal study. Pediatrics. 1996;97(4): 529–534.

[9] Broen PA, Devers MC, Doyle SS, et al. Acquisition of linguistic and cognitive skills by children with cleft palate. J Speech Lang Hear Res. 1998;41(3):676–687.
[10] Lamonica DA, Silva-Mori MJ, Ribeiro CDC, et al. Receptive and expressive language performance in children with and without cleft lip and palate. Codas. 2016;28(4):369–372.
[11] Cavalheiro MG, Lamônica DA, de Vasconsellos Hage SR, et al. Child development skills and language in toddlers with cleft lip and palate. Int J Pediatr Otorhinolaryngol. 2019;116:18–21.
[12] Collett BR, Leroux B, Speltz ML. Language and early reading among children with orofacial clefts. Cleft Palate Craniofac J. 2010;47(3):284–292.
[13] Chapman KL. The relationship between early reading skills and speech and language performance in young children with cleft lip and palate. Cleft Palate Craniofac J. 2011;48(3):301–311.
[14] Konst EM, Rietveld T, Peters HF, et al. Phonological development of toddlers with unilateral cleft lip and palate who were treated with and without infant orthopedics: a randomized clinical trial. Cleft Palate Craniofac J. 2003;40(1):32–39.
[15] Young SE, Purcell AA, Ballard KJ. Expressive language skills in Chinese Singaporean preschoolers with nonsyndromic cleft lip and/or palate. Int J Pediatr Otorhinolaryngol. 2010;74(5):456–464.
[16] Westerveld MF, Gillon GT, Miller JF. Spoken language samples of New Zealand children in conversation and narration. Adv Speech Lang Pathol. 2004;6(4):195–208. 2004/01/01
[17] Kapantzoglou M, Fergadiotis G, Restrepo MA. Language sample analysis and elicitation technique effects in bilingual children with and without language impairment. J Speech Lang Hear Res. 2017;60(10):2852–2864.
[18] Petersen D, Spencer TD. Narrative assessment and intervention: a clinical tutorial on extending explicit language instruction and progress monitoring to all students. Perspect Comm Dis Sci CLD Pop. 2014;21(1):5–21.
[19] Renfrew CE. Bus Story Test: a test of narrative speech. Bicester, Oxon: Winslow Press; 1997.
[20] Svensson Y, Tuominen-Eriksson AM. The Bus Story. [in Swedish]. Gothenburg: Specialpedagogiska institutet Läromedel; 2002.
[21] Heilmann J, Miller JF, Nockerts A, et al. Properties of the narrative scoring scheme using narrative retells in young school-age children. Am J Speech Lang Pathol. 2010;19(2):154–166.
[22] Stein N, Glenn C. An analysis of story comprehension in elementary school children. In: Freddle R, editor. Advances in discourse processes. Vol. 2. Norwood, New Jersey: Ablex Publishing Corporation; 1979. p. 53–120.
[23] Miller JF, Andriacchi K, Nockerts A. Assessing language production using SALT software. A clinician's guide to language sample analysis. 2nd ed. Middleton, WI: Salt Software LLC; 2015.
[24] Johnston JR. Narratives: twenty-five years later. Topics Lang Disord. 2008;28(2):93–98.
[25] Reuterskiöld C, Hansson K, Sahlén B. Narrative skills in Swedish children with language impairment. J Commun Disord. 2011;44(6):733–744.
[26] Lindgren J. Comprehension and production of narrative macrostructure in Swedish: a longitudinal study from age 4 to 7. First Lang. 2019;39(4):412–432.
[27] Klintö K, Brunnegard K, Havstam C, et al. Speech in 5-year-olds born with unilateral cleft lip and palate: a Prospective Swedish Intercenter Study. J Plast Surg Hand Surg. 2019;53(5):309–315.
[28] Lohmander A, Lundeborg I, Persson C. SVANTE - The Swedish Articulation and Nasality Test – normative data and a minimum standard set for cross-linguistic comparison. Clin Linguist Phon. 2017;31(2):137–154.
[29] Lenhard W, Lenhard A. Calculation of effect sizes. Dettelbach, Germany: Psychometrica; 2016. Available from: https://www.psychometrica.de/effect_size.html.
[30] Cohen J. Statistical power analysis for the behavioral sciences. Hillsdale, NJ, England: Lawrence Erlbaum; 1988.
[31] Willadsen E. Lexical selectivity in Danish toddlers with cleft palate. Cleft Palate Craniofac J. 2013;50(4):456–465.
[32] Scherer NJ, Oravkinova Z, McBee MT. Longitudinal comparison of early speech and language milestones in children with cleft palate: a comparison of US and Slovak children. Clin Linguist Phon. 2013;27(6-7):404–418.
[33] Boyce JO, Kilpatrick N, Reilly S, et al. Receptive and expressive language characteristics of school-aged children with non-syndromic cleft lip and/or palate. Int J Lang Commun Disord. 2018;53(5):959–968.
[34] Saervold TK, Hide Ø, Feragen KB, et al. Associations between hypernasality, intelligibility, and language and reading skills in 10-year-old children with a palatal cleft. Cleft Palate Craniofac J. 2019;56(8):1044–1051.
[35] Lohmander A. Surgical intervention and speech outcomes in cleft lip and palate. In: Howard S, Lohmander A, editors. Cleft palate speech: assessment and intervetion. Chichester: Wiley-Blackwell; 2011. p. 55–85.
[36] Miniscalco C, Nygren G, Hagberg B, et al. Neuropsychiatric and neurodevelopmental outcome of children at age 6 and 7 years who screened positive for language problems at 30 months. Dev Med Child Neurol. 2006;48(5):361–366.
[37] Riches NG. Sentence repetition in children with specific language impairment: an investigation of underlying mechanisms. Int J Lang Commun Disord. 2012;47(5):499–510.
[38] Klem M, Melby-Lervag M, Hagtvet B, et al. Sentence repetition is a measure of children's language skills rather than working memory limitations. Dev Sci. 2015;18(1):146–154.