Original Article

Comprehension of Passive Structure: Study of Children with and without Specific Language Impairment

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Objectives: Specific language impaired children, despite being normal in cognitive and neurological characteristics, and also normal levels of hearing, experience multiple problems in syntax comprehension. This study compared the passive comprehension in Persian-speaking typically developing children and Specific language impaired children.

Methods: 10 children with Specific language impairment, 10 typically developing children matched for age with Specific language impaired children, and 15 younger typically developing children responded to passive sentence comprehension using picture identification task.

Results: The results of study revealed significant differences in comprehension of passive sentences in Specific language impaired children and age-matched typically developing children. The difference in Comprehension of passive sentences was not statistically significant in Children with Specific Language Impairment and younger typically developing children. There were significant differences in the comprehension of passive sentences between two typically developing children groups.

Discussion: While age-matched typically developing children comprehend passive structure completely, it seems that Specific language impaired children and younger typically developing children still have not come to a full comprehension of the passive structure. Specific language impaired children compared with age-matched and younger typically developing children interpreted passive sentences mostly as active sentences.

Keywords: specific language impairment, passive sentence, comprehension, language development

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Introduction

A typically developed child is able to accomplish the basics of language development and comprehend and produce relatively complex sentences by the age of 4 to 5 years (1). However, there are some children who experience difficulties in comprehending and producing language in the absence of other disabilities such as hearing impairment, cognitive disabilities, neurological damage, physical disability in the speech organs or emotional/ behavioral problems in the autism spectrum (2,3) .they are called Specific Language Impairment (SLI). The prevalence of SLI in children is approximately 7% of the population (4). Limitations in the language abilities of SLI children have been found in all language domains; such as the lexicon, syntax and morphology (5-8). Morphosyntax is more affected than other linguistic domains by SLI cross-linguistically. Studies have demonstrated that difficulties with syntactic structures are

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characteristic of children with SLI (4,9,10) deficits in sentence comprehension have been well documented in children with SLI. Comprehension difficulties have been reported for a wide variety of sentence structures in English, including passive sentences (e.g., the cow is pushed by the woman), relative clauses (e.g., the dogs that are running are at the beach). Wh-questions (e.g., who was the happy little girl washing?) (11-17). The nature of these sentence comprehension problems is a subject of considerable debate. According to the most important thought, particular grammatical principles are late to emerge or are otherwise absent from the grammars of children with SLI, leading to misinterpretation of the related syntactic constructions (18). One of the syntactic structures that seem especially difficult for these children is the passive sentence the most obvious factor that can make passive sentences especially difficult for children with SLI is the non-canonical word order involved in passives. Van der Lely and Harris (16) tested 4 to 7-year-old children's comprehension of syntactic structures such as active and passive voices constructions. The children were presented with reversible active and passive sentences. Results showed that, children with SLI showed particularly weaker performance than age-matched typically developing children .Results showed that, in general, canonical sentences were easier than non-canonical sentences for all children, but children with SLI showed particularly weaker performance than age-matched and MLU-matched typically developing children.

There has not been any research regarding comprehension characteristics of SLI children in Persian language. Cross-linguistic studies have played a central role in the study of languages. Cross-linguistic studies of SLI are useful, because data from different languages are essential for establishing the validity of certain theoretical explanations of SLI. This study was aimed at identifying the characteristics of SLI in Persian by comparing the passive structure of Persian SLI children with typically developing children. Results are intended to be a contribution to our knowledge of Persian SLI in particular, and also to our more general knowledge of SLI across languages.

Methods

As participants in this study, 35 monolingual Persian-speaking children participated, 10 children with SLI and 25 typically developing children. SLI Children ranged in age from 58 to 71 months old (mean age 63.8). Typically developing children were included in two groups. 10 typically developing children were matched for age with SLI children (TD-A). They were aged 58 to 71 (mean age 64.2). 15 younger typically developing children (TD-Y) were in the age range 50 to 57 months (mean age 52.6). All typically developing children informally assessed by a speech and language pathologist. There was no delay in expressive and comprehensive language skills. Children were selected simple randomly from three kindergartens in three districts of Tehran (2, 8 and 15). Children with SLI were selected from four public and private rehabilitation center in a non-probability way. All SLI children met the following inclusionary criteria: They passed a hearing screening and an oral motor screening, In addition, each SLI child scored above 85 on the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (19). This measure served only to ensure adequate nonverbal functioning. Children with SLI had scores of at least 1. Five standard deviation were below the mean in Persian version of language development. Primary test (20). In order to comply with ethical considerations, parents signed parental consent form. In addition, the children were able to withdraw their cooperation in this study at any time. Parents were told that all information would remain confidential. Selected children attended individually in a quiet room, after a verbal communication, an album cut down on A4 pages was placed in front of the child, the picture arranged in a two-by-two format on a page. Passive comprehension task was part of unpublished test which is developed for assessing syntax comprehension of children by the authors.

The children were described as they looked at pictures carefully and showed the correct picture after reviewing all the pictures. Each child was given two practice items to make sure that he or she understood the nature of the task. The practice items were not in the passive voice. Children were presented 4 passive sentences. Then they were asked, pointing to one of the pictures show the true picture. Passive sentences included action verbs and were presented in the present. In Persian, passive structure usually comes without by phrase. 4 pictures of each sentence were designed as follow. For example, at the first sentence "the boy is pulled" target picture was a picture of the boy who was pulled by a horse. But as we said the passive sentence was a truncated one (without by phrase), so

“by the horse" was not present in the sentence and “by the horse” was drawn in the picture. The second picture was active meaning of target sentence, so it showed "The boy is pulling the horse”. Two other pictures were considered as semantic distracter. In both of these pictures there were horse and boy but the verb was different and it was near to the target verb semantically. The correct answers were given a score of 1 and the wrong answer was given a score of zero. The collected data were analyzed by SPSS-16 using one-way ANOVA for different age groups.

Results

In order to compare the participant groups, the analysis of variance (ANOVA) was performed through SLI, TD-A TD-Y. Descriptive statistics for the passive task for SLI group, TD-A group, TD-Y group are provided in table (1). Kolmogorov-sminirov tests did not reject the normality assumption for data, the variance could not be assumed to be homogeneous for data (levene’s test: p=.034, F(2,32)=3.76). Therefore we additionally used welch’s approach to heterogeneity of variance for the data with a post hoc Games-Howell test. The one-way ANOVA revealed significant between-group differences: F (2,32)=5.006, p=.013. Welch approach to heterogeneity of variance resulted in an asymptotic F(2,20.96)=8.27, p=.002. Post hoc using Games-Howell test indicated that the mean score for the SLI were significantly different from TD-A group (p=.016), whereas no differences was found between the SLI group and TD-Y group (p=.786). In the SLI group as well as TD-Y group, mean score for passive sentences were poorer than in the TD-A group. The mean score for the TD-Y was significantly different from TD-A group (p=.039).

Table 1. Comparison of comprehension of passive sentences among SLI, TD-A, TD-Y children

	Group					
	SLI(n=10)	TD-A(n=10)	TD-Y(n=15)			
	M±SD	M±SD	M±SD	df	F(2,32)	p
Passive sentences	2.00±.81	2.27±.78	3.30±1.22	2	5.006	0.013

Investigation of options selected by the children helps to more detailed analysis of TD and SLI children comprehension of passive sentences. Table (2) shows the percentage of any of the pictures in each sentence in 3 groups in separate. 60 or over 60 percent of TD-A children have selected the correct option (picture) in all sentences. 50 or more than 50 percent of TD-Y groups have selected the correct option in all sentences. After correct option the most selected option by children especially TD-Y group children had been active sentence picture. SLI children selected correct picture more than active sentence picture only in sentences 1(62.7%). In sentences 3 and 4 SLI children have chosen picture representing active sentence more than the correct picture (40% and 60%).

Table 2. The percentage of target picture and other pictures selection by children under three categories

	SLI(n=10)			TD-A(n=10)			TD-Y(n=15)		
	Correct picture	Picture representing active sentence	Other distracter pictures	Correct picture	Picture representing active sentence	Other distracter pictures	Correct picture	Picture representing active sentence	Other distracter pictures
Sentence1	62.7	27.3	10	100	0	0	66.7	26.7	6.7
Sentence2	50	50	0	80	20	0	53.3	20	26.4
Sentence3	30	40	20	100	0	0	60	26	13.4
Sentence4	30	60	10	60	40	0	50	50	0

Discussion

This paper attempted to assess comprehension of passive sentences in SLI and Persian typically developing children, 3 notable findings were determined. The first was passive sentences comprehension scores were significantly different in SLI children and TD-A children. TD-A children achieved higher scores on this task. The second finding was that the difference in passive sentences comprehension between SLI children and TD-Y children was not statistically significant. The significant difference between typically developing TD-Y children and TD-A children in comprehension of passive sentences was the third finding in this study. Comparison of pictorial options which was selected by typically developing children showed among four pictures for each sentence, just the target picture and picture of active meaning of sentences attracted TD-A children’s attention. 100% of typically developing children aged 58 to 71 months

chose the correct options in sentence 1 and 3, while more than 20 percent of TD-Y children chose the pictures representing active interpretation in the same 2 sentences. Children 50 to 57 months, in addition to selecting the picture representing active interpretation of the sentence, chose distracter pictures as well, which probably indicates that children 50 to 75 months still do not have a full comprehension of the passive structure. Average of passive sentences in SLI children was near to TD-Y children who were about one year younger than SLI children (Table 1). So at first glance it may be said that SLI children were about one year behind their peers in comprehension of passive structure, but the options were chosen by the SLI children showed (Table 2), the percentage of the correct option selection in each sentence by SLI children compared to children (TD-Y) was significantly less. The SLI children noticeably chose the pictures representing active interpretation of target sentence more than (TD-Y) children in sentences 2 to 4. For the SLI children ,except for the first sentence, selection of Pictures representing active sentences turn equal to or greater than correct picture selection. Therefore, based on these findings, although no difference was found between SLI and TD-Y children's comprehension, the percentage of correct answers selection in TD-Y children have been more than SLI children in all passive sentences. The percentage of correct answer in sentence 4 in all 3 groups was low, especially in SLI and TD-Y groups. The sentence4 was: “The woman is kissed”. The target picture showed "a woman is kissed by a child" and Picture representing active sentence showed "woman kisses the baby". TD-Y children selected the correct picture and picture of sentence active meaning equally in the sentence 4. SLI children in the same sentence selected the picture representing active sentence twice more than the correct picture. The results showed that children in who syntactic comprehension is not yet fully completed, passive sentences were assumed to be active .it is referred to as the Canonical Sentence Strategy. In this strategy children Expect the first noun as an agent and the second noun as an object (16,21). It’s natural for children under 3 to expect the passive sentences to be active (21). Most children do better on certain types of passive sentences than on others. For example, even children who misinterpret sentences like sentence 4, do well on the following passive sentences. “The food is eaten by the girl”. That’s because sentences like this can be understand without paying attention to whether they are active or passive. When you have a "food" and a "girl" and the verb "eat", there is really only one thing that can happen-the girl has to eat the food, since food cannot eat the girl. But things are not easy in all passive sentences. In the case of the sentences in this task, children cannot tell easily what happened. Children under age five usually do poorly on these kind of tests or tasks (21). The results of this study indicated that Persian speaking typically developing children aged 58 to 71 (TD-A) have had fairly complete comprehension of the passive structure.

However, TD-Y children age range 50 to 57 months has not achieved a full comprehension of the structure. Children with SLI still did not comprehend the passive structure and the passive sentences in most cases interpreted into active. These findings are consistent with studies in English language (13,16).

Conclusion

The study results indicated that SLI children aged 58 to 71 months did not comprehend passive structure .They interpreted passive sentences into active sentences. Moreover, it seems passive structure is a difficult one in Persian, It's comprehension in Persian speaking typically developing children appears late and 50 to 57 month old children of this study have not yet have a complete comprehension of passive sentences.

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