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Research Article

The Comprehension of Active and Passive Sentences in Persian Typically Developing Children Aged 48-71 Months

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ABSTRACT

Introduction: The passive sentence structure is one of the most interesting syntactic structures on language development. Studies in some languages have indicated that comprehension of this syntactic structure takes place late in the language acquisition process. Therefore, the purpose of this study is to investigate the comprehension of active and passive structures in 48-59- and 60-71-month-old Persian-speaking children.

Material and Methods: 100 children aged 48-71 months (38 children aged 48-59 months and 62 children aged 60-71 months) participated in this study from seven different kindergartens and three preschools. Five active sentences and four passive sentences were uttered, and the children were asked to look at one of the four pictures in front of them and choose the correct one. After recording the replies, comprehension scores were compared between both age groups and both gender using independent t-test. In the end, the percentages of correct and wrong answers were analyzed.

Results: There was a significant difference between the comprehension of active sentences by the children in both age groups ($P < 0.050$). Children aged 60-71 months scored higher. There were no significant differences between the comprehension of passive sentences between the two age groups ($P > 0.050$). Furthermore, there were no significant differences between the two genders in comprehension of active or passive sentences.

Conclusion: Based on the findings of this study, it appears that Persian-speaking children aged 48-71 months have a better comprehension of active sentences compared to passive sentences. Furthermore, despite the improvement in the comprehension of active sentences from 48 months to 71 months, no noticeable change occurred in the comprehension of passive structures.

Keywords: Comprehension; Persian; Passive; Active

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Introduction

Analyzing the development of language comprehension, especially comprehension of syntax, is one of the most interesting fields in research development. Some syntactic structures have been under investigation due to their characteristics, such as the passive structure, the analysis of which has a long history in English. One of the very first instances of such studies was carried out by Sinclair et al. (1) in 1997, on English-speaking children aged 3-6 years. After hearing the passive sentence, the children uttered the sentence using a doll. The results indicated that the comprehension of passive sentences is not complete before 6 years, and comprehension of reversible sentences is more difficult than irreversible ones.

Maratsos and Abramovitch (2) in 1975 studied the

comprehension of full and reduced passive structures using eight action verbs by 40 children aged 3-4 years. The children uttered the passive form of each sentence after hearing it using dolls. The results indicated that full and reduced passive structures are learned simultaneously.

The passive structure has also been studied in other languages such as Hebrew (3), Spanish (4), and Portuguese (5). These studies were largely conducted using tasks such as matching the correct pictures by what is heard. The results have generally indicated that the passive structure emerges late in the language development process and that children are mostly able to produce and understand them when they are about 5 years old (1-3, 6, 7).

Some studies in English have indicated that children aged around 5 years are able to understand passive structures containing action verbs, but are not able to comprehend passive sentences with non-action verbs until 7-9 years old. However, recent research using novel tasks has shown that children perform better in the comprehension of action verbs compared to non-action verbs using sentence to picture-matching tasks since picturing non-action verbs is considerably more difficult (8).

Borer and Wexler (9) considered the reason for the delay in the comprehension of passive structures to be based on maturity hypothesis. They stated that the passive structure is a complicated structure and that children may lack the ability of comprehending it, i.e., understanding movement of object to subject position is absent in the children's basic grammar. Therefore, children usually understand this structure as active. In fact, children interpret passive sentences as active ones in the early stages of their development since the comprehension of active sentences, even the reversible ones, occurs at around 3-4 years of age (10).

Other researchers have attributed the late acquisition of passive structures to the frequency of this structure in different languages. Based on this claim, the delay can be due to the fact that children do not hear enough passive structures in their linguistic environment. It is said that in African languages, the comprehension and production of passive structures happen at a much earlier age compared to English, around 3 years (11, 12).

Some passive sentences are used in a truncated way. This form of passive structure lacks a by-phrase. Some believe that truncated passive structure is more complicated compared to the full passive form (2). The passive verb, in Persian, is made up of the object and auxiliary verb "(Shodan)." Therefore, the use of a by-phrase in Persian sounds unnatural, and if used, it resembles the English passive structure (13).

The only research carried out on typically developing children regarding the comprehension of the passive structure belongs to Afaghi et al. (2013) (14). Following the construction of a 15-sentence test for comprehension of the passive structure, they tested it on 691 typically developing children aged 3-8 years and 18 children with impaired hearing. The most important result of this research was the significant relationship between comprehension of passive structures, gender, and age. Typically developing children aged 3 years answered nearly 24% of the sentences correctly, and those of 8-year-old chose more than 90% of correct answers.

Many speech and language pathologists, whose daily activity is assessing and treating children's language disorders, rely on normal development of comprehension and speech indexes. Unfortunately, in Persian, there has been little research regarding normal language indexes. Information about the age of comprehension of a syntactic structure in a relatively large population of typically developing children can be a great guide for speech and language pathologists seeking to treat children with language learning disorders. Furthermore, what researchers know of language comprehension development is mostly related to English. Conducting cross-linguistic research can be effective in proving or challenging the findings of these studies. Therefore, the purpose of the current study is to analyze the comprehension of passive and active structures in children aged 48-71 months of age in Persian.

Materials and methods

The present cross-sectional study was conducted on 100 children aged 48-71 months. Samples were obtained from 38 children aged 48 to 59 months (mean and standard deviation were 53.65 and 3.06, respectively) and 62 children aged 60-70 months (mean and standard deviation were 65.50 and 3.54, respectively) using the multistage stratified method. First, Tehran was divided into three geographical regions of north (areas 1-4), center (areas 4-14, 21, and 22), and south (areas 15-19). In the next step, eight educational areas were randomly selected, which were areas 1, 2, 5, 6, 7, 8, and 15. Then, among kindergartens and preschool centers in those areas, seven kindergartens and three preschool centers were randomly selected.

According to the available information in kindergartens and preschool files, demographic information questionnaires, reports from instructors, and evaluation of speech and language pathologists, monolingual Persian-speaking children aged 4-6 years were selected. Children were excluded from the study if they were suffering from cerebral palsy, clear visual impairment which could not be treated by visual aid instruments (glasses), a history of clear and obvious deferments in psychosomatic development indicators, and a history of convulsions. To ensure the naturalness of the language skills of children under study, an examiner with a history of 10 years of clinical practice in

the field of language informally evaluated every child's language abilities about 10 minutes before the task.

To comply with ethical considerations, parents signed the parental consent form. In addition, children could opt out of continuing to cooperate with this research at any time. It was announced to parents that all information regarding their children would remain confidential.

The children were individually brought to a quiet room. Sentences used in this research were part of the syntax comprehension test. The syntax comprehension test was normalized on 436 Persian-speaking 6-4-year-old children and assessed 24 Persian syntactic structures through a set of 96 items. Active and passive structures were a part of this test. Some psychometric properties of the syntax comprehension test are as follows: Validity of syntax comprehension test content was 0.81 and criterion validity of the test was 0.57. The internal consistency of the whole test was 0.89, the total syntax comprehension test time stability was 0.56, and time stability of active and passive structures was 0.66 and 0.58, respectively (15). After verbal communication, the test picture booklet, in which two colored pictures were located at the top and two colored pictures at the bottom of each page, was presented to the children. To ensure that the children realized how the test would proceed, after presenting a verbal description about the test method to each child, two sentences were given to the children as training and the main test was then performed. Five active and four passive sentences were read to the children in a conversational manner. Then, the children were asked to point to the correct picture. All the verbs of active and passive sentences were actions in the present tense. Active sentences were reversible and contained living subject and object. In syntax, sentences with interchangeable subject and object, where switching the two creates semantic differentiation, are called reversible. Four pictures were prepared for each active sentence. For instance, in a sentence like "The girl fondles the man," a picture shows the target sentence. But in the other picture, subject and object are replaced as in "The man fondles the girl." In the third picture, another verb which was semantically close to the action was designed. In the fourth picture, the subject and the shown verb were the same as the target sentence; however, instead of "The man" which was the object of the target sentence, another word was used. Four pictures related to passive sentences were designed as follows: for example in the sentence "The boy is being pulled," the target picture showed that the boy was being pulled by the horse. If the passive sentence was of shortened, "by the horse" would not exist and the picture would only show the subject. The second picture matched the target sentence, which showed "The boy is pulling the horse." The two other pictures were confounders. In both of these pictures, there were a boy and a horse but had different verbs which were semantically close to the target verb. The correct answer was given 1 and the wrong answer was given 0. Scores were calculated for active and passive structures separately for two age groups and both genders. Statistical analysis, including independent t-test, was conducted with SPSS software (version 16; SPSS Inc., Chicago, IL, USA).

Results

Table 1 shows the demographic characteristics of the participants. Nearly 46% of all samples were boys (46 individuals) and 54% were girls (54 individuals).

Table 1. Demographic characteristics of the participants

Characteristics	Frequency (%)
Gender	
Boy	46 (46)
Girl	54 (54)
Geographical area	
North	31 (31)
Center	47 (47)
South	22 (22)
Age groups	
48-59	38 (38)
60-71	62 (62)

Nearly 38% were in the age group of 48-59 months and 62% were of 60-71 months old. About 47% of the children were chosen from central areas of Tehran. In the age group of 48-59 months, 50% were boys and 50% were girls (19 individuals) and in the age group of 60-71 months, 48% were boys (30 individuals) and 52% were girls (33 individuals).

Table 2 presents average scores for active and passive structures separately for both age groups. Considering the significance level of 0.05 in this study, 60-71-month-old children understood more active sentences compared to 48-59-month-old children. This difference was statistically significant ($P < 0.005$). There was no significant difference between the comprehension of passive sentences between the two age groups ($P < 0.005$). None of the groups showed a significant difference between the two genders regarding active and passive structures ($P < 0.005$) (Table 3).

Table 2. Mean and standard deviation of active and passive structures in both age groups

Sentences	48-59 months	60-71 months	P value
	Mean ± standard deviation	Mean ± standard deviation	
Active	3.92 ± 1.05	4.48 ± 0.71	0.005
Passive	2.57 ± 0.97	2.70 ± 0.99	0.521

The probability value has been calculated using t-test

Table 3. Comparison of the mean scores for comprehension of active and passive structures in both genders broken down for the two age groups

Variables	48-59 months			60-71 months		
	Girl (n = 19)	Boy (n = 19)		Girl (n = 35)	Boy (n = 29)	
	Mean ± standard deviation	Mean ± standard deviation	P value*	Mean ± standard deviation	Mean ± standard deviation	P value*
Active	3.89	3.88	0.677	4.43	4.55	0.610
Passive	2.58	2.71	0.979	2.63	2.72	0.541

*The probability value has been calculated using t statistical test

Table 4 shows the percentage of each picture selection for each sentence separately. In both age groups and in all active sentences, more than 70% chose the correct answer. The percentage of the picture selection with inverted meaning in 48-59-month-old children was more than 60-71-month-old ones. In passive sentences, more than 30% of choices made by 48-59-month-old children and more than 50% of choices made by 60-71-month-old children were correct.

Figure 1 demonstrates the percentage of children in both age groups who answered all the five active and four passive sentences correctly. Nearly 31.6% of the 48-59-month-old children and 59.7% of the 60-71-month-old children answered all the five active sentences correctly. Almost 15.8% of the 48-59-month-old children and 19.4% of the 60-71-month-old children answered all the four passive sentences correctly.

Discussion

This paper attempted to assess the comprehension of nine sentences (5 active reversible and 4 passive sentences) in 38 children aged 48-59 months and 62 children aged 60-71 months. First, the obtained results showed that there was no significant difference between boys and girls in both age groups in terms of comprehension of active sentences. Lack of significant difference between the two genders in both age groups was also witnessed in passive sentences, which was in line with the results of Afaghi et al. (14). Second, comprehension of 60-71-month-children was higher than that of 48-59-month-old children in active sentences and there was a significant relationship between the two age groups (Table 2); however, there was no significant relationship between both groups in the comprehension of passive sentences. The mean score for the comprehension of passive sentences in 60-71-month-old children was just slightly higher than the mean score for the comprehension of passive sentences in 48-59-month-old children (Table 2). Therefore, it seems that while the comprehension of active structure increases with age, the comprehension of passive structure remains unchanged. It can be said that the reason behind significant difference regarding passive structure between these two age groups is that syntax comprehension has no development in this age group.

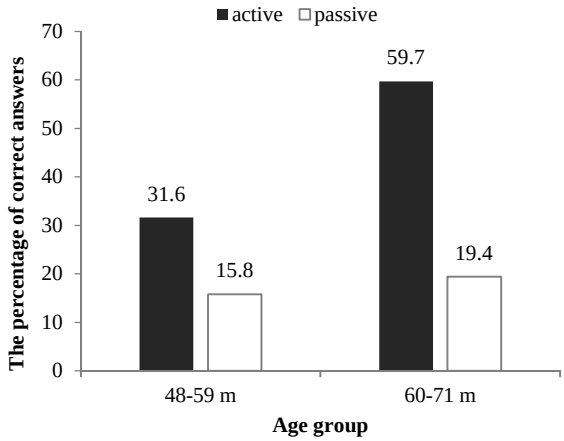

Figure 1. Percentage of correct answers in passive and active sentences in both age groups

Table 4. Percentage of pictures selected for active and passive sentences broken down for age groups

Sentences	48-59 months			60-71 months		
	Correct image	Active meaning image	Other images	Correct image	Inverted meaning image	Other images
Active						
Sentence 1	76.3	23.7	0.0	81.6	17.7	1.6
Sentence 2	76.3	21.1	2.6	91.9	8.1	0.0
Sentence 3	76.3	18.4	5.3	85.5	14.5	0.0
Sentence 4	73.7	21.1	5.3	93.6	4.8	1.6
Sentence 5	89.5	7.9	2.6	96.8	3.2	0.0
Passive						
Sentence 1	73.7	26.3	0.0	69.4	25.8	4.8
Sentence 2	63.2	28.9	7.9	69.4	30.6	0.0
Sentence 3	81	13.8	5.2	80.7	14.5	4.8
Sentence 4	39.5	47.5	13.1	51.6	45.2	3.2

A simple comparison of percentages of correct answers to all active and passive sentences in the 48-59-month age group and the 60-71-month age group based on figure 1 supports this claim. In this figure 1, it is clear that the percentage of correct answer to all the five active reversible sentences in 60-71-month age group has been doubled compared to the 48-59-month age group. This is while the percentage of correct answer to all the four passive reversible sentences in 60-71-month age group has remained almost unchanged compared to the 48-59-month age group.

Types of pictures chosen by 48-59-month-old children indicate that while in all active sentences often the correct option is selected, the wrong choice (inverted meaning) and other confounding pictures have also been favored among 48-59-month-old children such that more than a third of the responses of this age range fall in this category. On the other hand, in active sentences, more that 85% of the choices made by 60-71-month-old children have been correct. Such a difference in choices which increase over time can be due to gradual growth in the comprehension of 48-71-month-old Persian-speaking children under the study regarding the active structure. However, in passive sentences, this growth trend was not seen. Although the correct choices in passive sentences in both age groups had a higher percentage compared to other options (except sentence 4 in 48-59-month-old children), approximately one-third of the children of each age group chose the picture, representing active meaning of the sentence (picture showing an inverted meaning). Selection of the picture associated with the active interpretation of the sentence, regarding sentence 4, has considerably increased. The 48-59-month-old children chose the picture representing the active meaning more than the correct picture. An in-depth assessment of sentence 4 results in interesting findings regarding the comprehension of active sentences. Children, in sentence 4, heard “the woman is kissed.” The correct picture showed a woman who was being kissed by a kid. The picture for active meaning of the target sentence showed a woman who is kissing a kid. Children’s tendency to select the image for “woman kisses the kid” in sentence 4 is because, essentially, when syntactic comprehension is not developed for a structure, children will often answer based on things that are more probable in the outside world. In other words, it could be said that based on children’s ontological framework, it is more probable that mothers and women kiss and fondle babies and the reverse action (mother being kissed by the baby) is more likely from a child’s perspective. In this case, if the child does not have a complete syntactical comprehension about the sentence, the child judges the sentence based on his/her vision of the real world. Such a phenomenon is a developmental process which is reported by research as a process which happens before the full development of such syntactical comprehension (16, 17).

In fact, the basis of evaluation in syntactical comprehension is selection of sentences that are challenging for the child and he/she can respond to them based on solely syntactical knowledge, not the possibility in the outside world. Although 60-71-month aged children chose more correct answers in passive sentences, the difference has not been significant enough to create a comprehensive difference between the two groups. Thus, in the 48-71-month age group by increase in age, unlike the active structure, there is no upward trend in the comprehension of passive structure. In general, Persian-speaking children in this age range still do not have a thorough comprehension of the passive structure. Therefore, like many children in other languages, they interpret passive sentences as active. Our results are in line with the studies regarding the English language (1, 2, 4-6, 8). For example, Sinclair et al. (1) showed that passive sentences do not develop completely until age 6 and comprehension of reversible sentences is harder. Considering that there is no comprehensive study about the frequency of passive structure in informal Persian, we cannot attribute the existing delay in the comprehension of syntactical sentences, which was shown in this study, to reduce frequency of this structure in Persian although linguists believe that frequency of passive sentences in Persian is low. Although this study was conducted on a relatively large sample of children aged 48-71 months, due to the limited number of active and passive sentences in this study, the results should be interpreted with caution and more studies are needed in this field on various passive and active sentences. It seems that comparing the comprehension of passive and active reversible sentences in preschool children will lead to better insight into the comprehension of passive structure in Persian.

Conclusion

In this research, the comprehension of 100 Persian-speaking children aged 48-71 months from passive and active reversible sentences was assessed. Based on the obtained results, it seems that Persian-speaking 48-71-month-old children have a better comprehension of active reversible sentences compared to passive reversible sentences and from 48 to 71 months, despite an increase in the comprehension of active sentences, no significant increase in the comprehension of passive sentences was observed.

Conflict of Interests

Authors have no conflict of interests.

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