The Acquisition of Jordanian Arabic
Plural Morphology by Children
with Autism Spectrum Disorder

Засвоєння морфології множини
йорданської арабської мови дітьми
з розладами аутистичного спектру

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ABSTRACT

Aim. This study investigates the acquisition of plural morphology by native Jordanian children with autism spectrum disorder (ASD). The primary objective of the study is to assess children’s capacity to use plural morphology in Jordanian Arabic, aiming to identify the most frequently utilized form of the plural and the reasons behind its prevalence.

Methods. The study involved a sample of 10 male and female children with ASD, averaging twelve years old, from Tawasul Center for Autism in Amman, Jordan. Utilizing twenty representative pictures featuring familiar plural items such as chairs, televisions, and children, the participants were tasked with identifying the depicted elements.

Results. The findings indicated that the children faced challenges in employing plurals in Arabic, with the feminine morpheme being the most consistently used. However, instances of overgeneralization in the use of the feminine morpheme were noted, leading to inaccuracies. Moreover, children avoided plural forms in several cases and resorted to singular forms paired with words that indicate duality or plurality.

Conclusion. The research results indicate that, by the age of 12, individuals with ASD experience challenges in acquiring proficiency in plural forms in Jordanian Arabic. The study underscores the difficulties these individuals encounter in understanding linguistic elements related to plurality within the specific linguistic context. It also demonstrates that comprehending the complexities of how autistic children acquire plural morphemes is not solely an academic interest; it holds practical significance for designing interventions to enhance their language proficiency and improve overall communication skills.

Key words: Autism Spectrum Disorder (ASD), plural morphology, Jordanian Arabic, acquisition.
Introduction

The emergence of language skills represents a distinctive developmental milestone that follows a remarkably consistent trajectory among children, irrespective of notable variations in the language's structure, individual differences in social skills and intelligence, cultural factors. Nonetheless, not everyone progresses to attain functional language skills, and the existence of language delays or deficits serves as a clear indication of developmental challenges.

One of the salient disorders that clearly affect language acquisition and development is autism spectrum disorder (ASD) which is according to the American Psychological Association one of several conditions that usually emerge in early childhood, these disorders are marked by challenges in social communication and interaction, along with restricted and repetitive behaviors, interests, and activities. Many children with autism struggle to communicate and, importantly, experience a delay in language acquisition. Nonetheless, the connection between autism and language development is intricate, mainly due to the unique characteristics of everyone with autism (Marrus et al., 2018). To illustrate, a particular child on the autism spectrum might begin speaking at an early age, yet over time, they may struggle to utilize language effectively for self-expression which is reflected in the different areas of language. The language abilities observed in individuals with autism are notably diverse, spanning from complete autism and limited or non-functional communication to relatively advanced syntactic skills and functional speech (Manookin, 2004). Yet, there is a distinct and atypical utilization of language, characterized by disruptions, repetition, and the presence of seemingly meaningless elements (Wilkinson, 1998; Tager-Flusberg, 2004; Eigsti, Bennetto & Dadlani, 2007). Bartolucci, Pierce, and Streiner (1980) showed that children with autism produced less grammatical morphemes than normally developed children, especially verb tense and articles.

The study of plural morphology acquisition has received extensive attention across many languages, primarily due to the intriguing variations observed in children's comprehension and production of these structures. The process by which native speakers acquire complete and automatic control over the inflectional and derivational machinery
of their mother tongue is known as first-language acquisition of morphology. Evidence indicates that morphological acquisition, despite language diversity, follows a common developmental route, moving from a semantically and structurally simplex and non-productive state to one that is more complicated and productive (Ravid, 2019). Accordingly, the interest to conduct research on the acquisition of ASD children to plural morphemes arises to check if autistic children follow the same developmental route in acquiring the structures of plural morphemes.

Therefore, if people with autism have trouble with language and communication, and plural constructions cause problems and delays for children who are typically developing, then these structures might cause problems for people with autism. This study aims to determine the kinds of plurals that people with autism use and how well they can learn plural morphemes in Jordanian Arabic. It also aims to provide an explanation for the selective use of these forms by the participants. It is a potentially worthwhile area of study because there is a dearth of information in the literature on Jordanian Arabic regarding the relationship between ASD and the learning of plural morphemes.

**General Background**

**Plural in Arabic**

Plural in Standard Arabic can be derived from the singular in two ways. The first is called sound plural in which the noun simply suffixed with [-īn] or [-ūn] for the masculine nouns, and with /āt/ for the feminine. For instance:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>muʕallim ‘teacher-masculine’</td>
<td>muʕallim-ūn ‘teachers-masculine-plural. Nominative’</td>
</tr>
<tr>
<td>muʕallim ‘teacher-masculine’</td>
<td>muʕallim-īn ‘teachers-masculine-plural. Accusative’</td>
</tr>
<tr>
<td>muʕallim-ah ‘teacher-feminine’</td>
<td>muʕallim-āt ‘teacher-feminine-plural’</td>
</tr>
</tbody>
</table>

The other type is called a broken plural, which, according to McCarthy and Prince (1990), is the dominant and most productive pattern of pluralization in the Arabic language. A broken plural is an
irregular form that involves alternations in the internal sound pattern of the singular word. It is dominant because it can be applied to most types of nouns, both feminine and masculine, as well as static, dynamic, and gerunds. For example:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>bāb ‘door’</td>
<td>Ɂabwāb ‘doors’</td>
</tr>
<tr>
<td>kitāb ‘book’</td>
<td>kutub ‘books’</td>
</tr>
</tbody>
</table>

The plurals are primarily used for items numbering three or more. Interestingly, Arabic also incorporates a dual form of the noun, derived by adding the suffix [-ān] or [-īn] for nominative and accusative nouns, respectively as in the following example:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
</table>

Jordanian Arabic (JA) maintains the same distinction of singular, dual, and plural, and follows nearly identical morphological processes as Standard Arabic. The primary difference lies in JA’s neglect of Case Marking, leading to the use of accusative forms instead of nominative forms for sound plural and dual constructions.

**Previous Studies**

Mervis, and Johnson (1991) analyzed information from a thorough, methodically carried out diary study of a single child’s early lexical development to present a thorough explanation of the plural morpheme’s acquisition. From the age of 18 to 30 months, both correct forms and omission errors were recorded. All entries included details regarding the referent, the context, the adult response, and the quality of the produced utterance. The findings were qualitatively and quantitatively different from those of earlier studies on multiple acquisition. It was shown that morphology was learned before syntax, that by the age of 20 months, there was evidence for a syntactic definition of a noun, and that knowledge about certain lexical entries significantly influenced how quickly the plural was learned.

Oetting and Rice (1993) two groups of children with normal development – an age-equivalent group (CA) and a language-equivalent group (MLU) – were given a plural elicitation test and a nominal compounding challenge. The CA and SLI groups differed significantly
from the MLU and SLI groups across tasks, but not from each other. These results imply that children with SLI have a diversified and productive multiple system by the age of five. Nevertheless, in contrast to children who grow normally, the pluralization skills of children with SLI were influenced by the frequency of input; nouns that are pluralized often in daily speech were shown to be easier to inflect than those that are not.

Szagun (2001) found that two-hour spontaneous speech samples from six children between the ages of one and three, recorded every five to six weeks, and from fifteen children recorded every twenty weeks, were used to assess the learning of German noun plurals. We also sampled adult speech. Plural forms were first used early on, and individual type frequency growth rates varied. From an early age, children used the various German plural markers. The -n and -e plurals showed the quickest growth rates, with type frequencies for each distinct plural class matching adult frequencies. Relative type frequencies for each plural class varied from adult use at age 2;10, but not at age 3;8. From the start, there were a lot of errors generated. The frequency of major error categories, -n, -s, partial marking, and no marking were all the same. The German plural marking system’s regularities were reflected in error patterns.

Ravid, and Farah (2009) provided that in all spoken Arabic dialects, Palestinian Arabic (PA) sound plurals are created by appending one of two suffixes – which are based on the gender of the singular nouns – to the singular stem. [-īn] is the masculine suffix, as in fallāH/fallāHīn ‘farmer/s’. As in kubbāy/kubayāt ‘glass/es’, the feminine suffix is [-āt]. In addition to attaching to male stems (such as balān / balonāt ‘balloon/s’) and foreign borrowings that cannot be handled by a broken plural pattern, compared to the masculine plural suffix, the feminine plural suffix is more common.

Lukács, Leonard, and Kas (2010) proved that grammatical morphology is frequently used with considerable difficulty by children who have language impairments. In this study, two verbal control groups matched on vocabulary size and two older (8–10 years) and younger (4–7 years) groups of children with language impairments were asked to produce nouns with plural, accusative case, and plural plus accusative case suffixes. The purpose of the exercise was to examine the production of Hungarian irregular and regular noun morphology.
Both morphophonology (if the production reflected the phonotactic form required for the stem plus suffix) and grammatical function (whether plural and/or accusative case was suitably marked) were used to grade the children's accuracy. At least when noun stem classes were regular, it was discovered that the younger language-impaired children performed less accurately than the younger verbal control children when two suffixes – marking plural and accusative case – were needed. With the appropriate suffix selection, all groups demonstrated a significant overgeneralization of stem forms. In contrast to the verbal control groups, there were significant word frequency effects in the language impairment group.

Ettlinger, and Zapf (2011) showed that in addition to demonstrating mastery of a morphological process, proper usage of an affix – like the English plural suffix – may also be influenced by children’s syntactic, semantic, and phonological development. This article presents a series of tests that bolster the latter theory, emphasizing the significance of multiple forms’ phonological composition for both comprehension and production. Eighty-two-year-old children were asked to produce plurals for nouns with different phonological features in Experiments 1 and 2. The findings show that the intricacy and sonority of the coda play a role in determining the generation of the plural morpheme. The results of Experiments 3 and 4 demonstrate that similar restrictions on codas also apply to understanding, indicating that this effect affects the plural’s morphophonology in addition to its articulation.

Abdalla, Aljenaie, and Mahfoudhi (2013) conducted research on Kuwaiti Arabic-speaking children with and without language impairment produced three types of noun plural inflections: feminine sound plural (FSP), male sound plural (MSP), and broken plural (BP). Twenty-seven visual stimuli of genuine and fictitious words were shown to a total of thirty-six Kuwaiti participants: twelve adults, twelve children with specific language impairment (SLI), and twelve normally developing age-matched controls (TD). The TD kids outperformed the SLI group in terms of accuracy when it came to employing the necessary noun plural inflections, according to the data. Compared to their counterparts with SLI, the TD children opted to overgeneralize by substituting FSP for the regular MSP and irregular BP settings. The number of errors and how they were distributed among the categories likewise
showed differences between the SLI group's performance and that of their age-matched peers.

Albirini (2014) looked at how plural morphology develops in Arab children living in Jordan. It also looks at how predictable, transparent, productive, and frequent various plural forms are in terms of how infants learn this intricate system of inflectional patterns. The study also reexamines how the concept of default evolved over several years. Six age groups (three to eight years old) of sixty Jordanian children each completed an oral real-word pluralization task and a nonsense-word pluralization task. The results show that the acquisition of feminine sound plurals precedes and extends to the other plural forms. For younger children, acquisition patterns appear to be shaped by productivity and frequency, but as they become older, predictability becomes more important. Older children typically utilize two default forms based on adult language frequency distributions, whereas younger children employ the more productive plural as the default form.

Alkhatib, and Altakhaineh (2023) explored the utilization of various possessive pronouns in Jordanian Arabic by individuals diagnosed with autism spectrum disorder (ASD). The study involved 16 autistic children aged 11–15, categorized into two groups based on their IQ scores: low (70–74) and high (76–80). The participants were exposed to two stimuli, and their choices and interactions with the selected stimuli were observed. Data analysis employed descriptive statistics and t-tests to evaluate group differences. The results indicated that children with autism encountered difficulties in effectively using and producing all possessive pronouns in both forms. Furthermore, the findings suggested a preference for possessive pronouns over possessive adjectives among the autistic participants.

Methodology

Participants

Ten autistic children, nine of them male and one female, with an average age of twelve, made up the research group. They were enrolled at the Tawasul Center for Autism in Amman, Jordan. The ethical approval (Approval No. SL 2/2023/66) was obtained by the administration of the center one week before conducting the assessments. In addition,
a consent form was signed by each of the children’s parents confirming that they can participate in the study. They were also assured that the information and results of the students will remain confidential and will be only used for research purposes.

This gender distribution is consistent with the results of numerous studies that have demonstrated that males are more likely than females to develop autism. For example, Loomes, Hull, and Mandy (2017) found that the proportion of autistic children is three to one, with a higher proportion of males than females. Ten children diagnosed with ASD, primarily native speakers of Jordanian Arabic, participated in the study. The selection criteria included comparable first language (L1) proficiency and an average mental age of approximately eight years, as assessed annually by the center. All participants demonstrated a nonverbal IQ score of approximately 45 and a moderate severity of ASD symptoms. None of the children displayed language impairments.

**Procedure**

Twenty representative images were utilized to assess the understanding of plural morphology in autistic children (see Appendix 1). The images consisted of five depicting masculine sound plural, five depicting feminine sound plural, and ten representing broken plural forms. The selection of images was made in consultation with the center’s teachers to ensure familiarity and comfort for the children. Studies like Charlop-Christy, et al. (2002), Ganz and Simpson (2004), and Altakhaineh and Alkhatib (2019) have used images to gather data, reinforcing their effectiveness as a tool for evaluating children with ASD. The assessment involved individually presenting the images to each child, who was then asked to describe what they saw. The question posed to the children for each image was: “What can you see in the picture?” Their responses were recorded for subsequent analysis. Following data collection, an error analysis approach was employed to analyze the responses. This approach, commonly used in studies involving language acquisition, aims to identify and characterize errors made by participants, as well as understand their underlying causes. The same methodology for recording and analyzing responses was employed as described in previous studies by Alkhatib and Altakhaineh (2023) and Al-khresheh (2016). See Figure 1 below.
A linguist and an expert in the field of autism examined the objects and questions prior to the verbal prompting to make sure they were fair and suitable for the study participants.

**Statistical Analysis**
Based on the results of the statistical analysis, the masculine sound plural was used by the participants, yielding 12 correct answers out of 50, the broken plural resulted in 30 correct answers out of 100, and the feminine sound plural produced 18 correct answers out of 50. The results and discussion are provided in the following section.

**Results and Discussion**

The plural morphology used by autistic children are displayed in the following table. The instances of each structure were calculated as shown in Table 1.

Table 2 includes the percentages of correct answers regarding the use of plural morphology by autistic children, depending on the data presented in Table 1.

In general, the results found a notable weakness in the autistic children’s proficiency in employing plural morphology. Autistic children face difficulties in acquiring various linguistic features, including the acquisition of plural morphemes, as illustrated in Tables 1 and 2.
### Table 1
**Number of Answers Using Plural Morphology**

<table>
<thead>
<tr>
<th>Plural Type</th>
<th>Words</th>
<th>S.1</th>
<th>S.2</th>
<th>S.3</th>
<th>S.4</th>
<th>S.5</th>
<th>S.6</th>
<th>S.7</th>
<th>S.8</th>
<th>S.9</th>
<th>S.10</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculine Plural</td>
<td>muzariʕīn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>xabbāzīn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>nadʒarīn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>xayyatīn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>muʕalmīn</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Feminine Plural</td>
<td>tāwlāt</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>19</td>
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<tr>
<td></td>
<td>muʕallimāt</td>
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<td>0</td>
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<td>1</td>
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<td>1</td>
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<td>16</td>
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<tr>
<td></td>
<td>tilfizywnāt</td>
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<td>0</td>
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<td>1</td>
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<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>sāʕāt</td>
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<td>1</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
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</tr>
<tr>
<td></td>
<td>tilifwnāt</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Broken Plural</td>
<td>suwar</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>ʔaqlām</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>barādy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
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<tr>
<td></td>
<td>ʔalwān</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>karāsi</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ḥabbābik</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
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</tr>
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<td></td>
<td>ʔabwāb</td>
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<td>0</td>
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<td>1</td>
<td>0</td>
<td>0</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>xazāyn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ward</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>1</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>ʔawlād</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2
**Percentages of Correct Answers Using Plural Morphology**

<table>
<thead>
<tr>
<th>Plural form</th>
<th>S.1</th>
<th>S.2</th>
<th>S.3</th>
<th>S.4</th>
<th>S.5</th>
<th>S.6</th>
<th>S.7</th>
<th>S.8</th>
<th>S.9</th>
<th>S.10</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>masculine</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>40%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>25%</td>
</tr>
<tr>
<td>feminine</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>80%</td>
<td>0%</td>
<td>100%</td>
<td>100%</td>
<td>40%</td>
<td>0%</td>
<td>0%</td>
<td>37%</td>
</tr>
<tr>
<td>average sound</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>90%</td>
<td>0%</td>
<td>70%</td>
<td>100%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>31%</td>
</tr>
<tr>
<td>broken</td>
<td>5%</td>
<td>0%</td>
<td>10%</td>
<td>100%</td>
<td>5%</td>
<td>30%</td>
<td>80%</td>
<td>30%</td>
<td>10%</td>
<td>10%</td>
<td>28%</td>
</tr>
<tr>
<td>average</td>
<td>5%</td>
<td>0%</td>
<td>10%</td>
<td>95%</td>
<td>5%</td>
<td>50%</td>
<td>90%</td>
<td>25%</td>
<td>5%</td>
<td>15%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Additionally, the acquisition of possessive pronouns poses challenges, as indicated by Alkhatib and Altakhaineh (2023). Their study revealed that children with autism encounter difficulties in effectively using and producing all possessive pronouns in both forms. As outlined in
Table 2, the overall accuracy in generating correct plural forms was confined to 30%. Among the various plural structures, the masculine plural morphology was utilized by the children with the least accuracy, demonstrating 25%. On the other hand, the feminine plural demonstrated the highest correct usage, comprising 36% of the total. It is noteworthy that sound plural was generally used more correctly than broken plural showing 31% and 28% respectively. Furthermore, the examination of students’ abilities to employ plural morphology revealed a discernible comparability. While one student exhibited an impressive accuracy of 95% in correctly pluralizing words, another student failed to provide any accurate responses across all three types. This diversity in performance underscores the variability in the linguistic capabilities of children with ASD when it comes to applying plural morphological rules in Jordanian Arabic. Moreover, it is crucial to recognize that these findings underscore the substantial linguistic challenges autistic children encounter, which can significantly impact their communication and language development.

As noticed in the table above just 12 instances, out of 50, were correct. Additionally, one of the students over-generalized the use of the feminine plural morpheme [-āt] instead of the masculine plural morpheme [-īn]. For instance, he said “muʕallimāt” instead of “muʕallimīn”, “xabbāzāt” instead of “xabbāzīn”, and “nadʒarāt” instead of “nadʒarīn”.

The most used plural morpheme is the feminine plural morpheme [-āt] with 18 correct instances out of 50. It seems that the feminine plural morpheme [-āt] is the easiest plural morpheme to acquire. As observed earlier, it was used instead of the masculine plural morpheme [-īn]. Notably, the prevalence of errors in plural morphology among autistic children, particularly the overgeneralization of the feminine plural morpheme [-āt], reflects the intricate nature of language acquisition in this population.

Additionally, the feminine plural morpheme [-āt] was used to pluralize words that are supposed to be broken plurals, i.e., instead of using the broken plural, the student used the feminine plural morpheme [-āt] to form the plural forms as in the following examples:

(1) The student used the word “bābāt” to describe a group of doors, so instead of saying ʔabwāb, he said “bābāt”. 
(2) The student used the word “sūrat” to describe a group of pictures, so instead of saying suwar, he said “sūrāt”.

(3) The student used the word “wardāt” to describe a group of flowers, so instead of saying ward, he said “wardāt”.

The overgeneralization of the feminine plural morpheme [-āt] is an indication that it is the easiest to acquire for autistic children. This kind of overgeneralization was also noticed in typically developed children, by Abdalla, Aljenaie, and Mahfoudhi (2013), where children used feminine morpheme over the masculine and instead of the broken plural. This also agrees with the findings of Albirini (2014), which suggest that normally developing children typically acquire feminine sound plurals first and then extend their knowledge to encompass other plural forms.

The feminine plural morpheme is the most applicable to many masculine stems as in “bālūn-āt” and foreign words like “tilfizywn-āt”, as argued by Ravid, and Farah (2009). This might also be one of the reasons behind the overgeneralization of this morpheme.

Regarding the broken plural, out of 100 instances, only 30 instances were correct. The most used broken plural forms are “ʔawlād” with 5 instances and “karāṣy” with 4 instances. This might be attributed to the frequency of the usage of the word as argued by Oetting and Rice (1993) who found that the pluralization skills of children with SLI were influenced by the frequency of input. The word “ʔawlād” (boys or children) and “karāṣi” (chairs) are very frequently used in the children’s contexts.

It is worth noting that some of the children did not use either the feminine plural morpheme [-āt] or the masculine plural morpheme [-īn]. They also did not use the broken plural. Instead, they used the quantifier dżamīʕ which means (all) to indicate on pluralization. For example, a student said “dżamīʕ ʃubbāk” instead of ʃabābīk, “dżamīʕ bāb” instead of ʔabwāb, “dżamīʕ xazāna” instead of xazāyn, “dżamīʕ wardah” instead of ward, and “dżamīʕ walad” instead of ʔwlād. To form the plural, the quantifier dżamyʕ was added to the singular noun.

It is worth mentioning that one of the students used the dual form instead of the plural form. He said “qalamān” instead of ʔaqlām, “muʕallimān” instead of muʕallimīn, and “ʃubbākān” instead of ʃababīk. Another student used the quantifier iθnayn which means (both) to form the plural form. For instance, he said “tilfizywn iθnayn” instead of tilfizywnāt. This result reveals the lack of acquisition of any of the
plural forms since the words are used in the singular form even though they realized that they are more than one. The reason for which they used the word “iθnayn”.

Conclusion

After examining ten 12-year-old native Jordanian children with ASD regarding the acquisition of plural morphemes, the results of the study revealed that autistic children encounter difficulties in mastering plural morphemes. The statistical analysis demonstrated that children misused plural forms in most instances, about 70%. A notable challenge observed was the acquisition of the masculine morpheme [-īn]. Children tended to use the feminine morpheme [-āt] instead of the masculine, indicating an overgeneralization pattern like that observed in typically developing children, as reported by Oetting and Rice (1993). Notably, while Oetting and Rice’s study involved 5-year-old children, the participants in our study were 12 years old. This suggests that children with ASD follow a comparable sequence of morpheme acquisition as their typically developing counterparts, albeit at a later developmental stage. In addition, the results revealed that the children struggled to employ broken plurals. Two of the correctly used broken plural instances, namely Ɂawlād (children or boys) and karāsī (chairs), are very commonly used by teachers in their environment, possibly contributing to accurate usage. Some children fail to use any of the plural forms and opt for the singular form, pairing it with another word, i.e., “dʒamīʕ” (all), to convey plurality. Furthermore, other children who failed to use any plural form resort to use a word that expresses duality, i.e., iθnayn (two). In summary, the research findings suggest that, by the age of 12, children diagnosed with ASD encounter difficulties in mastering plural forms in JA. The study highlights the specific challenges these individuals face in acquiring linguistic elements associated with plurality within the given linguistic context.

Understanding the intricacies of plural morpheme acquisition in autistic children is not merely an academic pursuit but has practical implications for designing targeted interventions aimed at improving their language abilities and enhancing overall communication skills. Although the frequency of input could partially explain the correct usage
of certain plural forms, it is crucial to conduct further research to delve into other factors that may contribute to the observed patterns, such as differences in cognitive processing. In other words, future research endeavors could delve deeper into the underlying cognitive mechanisms influencing plural morpheme acquisition in autistic children, shedding light on effective intervention strategies tailored to their specific linguistic needs.

ADHERENCE TO ETHICAL STANDARDS

_Ethics Declarations._ The ethical approval, designated as Approval No. SL 2/2023/66, was acquired from the administration of Tawasul Center for Autism one week prior to the commencement of the assessments. Additionally, each child's parent signed a consent form, affirming their willingness for their child to participate in the study. Furthermore, the parents were provided assurance that all information and outcomes pertaining to the students would be kept confidential and solely utilized for research objectives.

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_Author Contributions._ Both the first and second authors played integral roles in conceptualizing and designing the study. All three authors actively participated in material preparation, data collection, and analysis. Additionally, the initial draft of the manuscript was collaboratively written by all authors. Throughout the process, all authors provided feedback on previous versions of the manuscript and ultimately reviewed and approved the final version for submission.

_Consent for Publication._ The authors approve the publication of the current work. The work has not been, nor has it been submitted to other journals in consideration for publication.

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References


Засвоєння морфології множини йорданської арабської мови...
особи в розумінні мовних елементів, пов'язаних з множиною в конкретному мовному контексті. Воно також демонструє, що розуміння складнощів засвоєння дітьми з аутизмом морфем множини має не лише академічний інтерес, але й практичне значення для розробки інтервенцій, спрямованих на підвищення рівня володіння мовою та покращення загальних комунікативних навичок.

Ключові слова: розлад аутистичного спектру (РАС), морфологія множини, йорданська арабська, засвоєння.