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| **RESEARCH ARTICLE**

Children's Acquisition of wh-questions in Najdi Arabic

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| **ABSTRACT**

This study investigates the acquisition of subject wh-questions (Sub-WQs) and object wh-questions (Obj-WQs) in Najdi Arabic (NA). Drawing on a truth value judgment task (TVJT), the study tested 21 NA-speaking children aged 3 to 6 divided into three age groups, focusing on their comprehension of Sub-WQs and Obj-WQs using two wh-phrases: miːn 'who' and ʔæj 'which.' Findings revealed that children comprehended Sub-WQs significantly better than Obj-WQs, supporting previous research in languages with overt wh-movement. In contrast, no significant difference emerged between miːn and ʔæj, suggesting that both wh-phrases are equally accessible to NA-speaking children. Additionally, age did not significantly impact performance, indicating early acquisition of both question types across the tested age range. These results challenge the Antecedent Government Hypothesis and support the notion that syntactic movement and morphological simplicity shape acquisition patterns. The study contributes to the growing body of research on wh-question acquisition and highlights the need for further cross-linguistic and developmental investigations.

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1. Introduction

The acquisition of *wh*-questions has been a central topic within the field of language acquisition. The debate over which type of *wh*-question children acquire first, subject *wh*-questions (Sub-WQs) or object *wh*-questions (Obj-WQs), has been a persistent and controversial issue. Cross-linguistic studies generally indicated that children find Sub-WQs easier to acquire than Obj-WQs in languages such as English, Italian, Greek, Mandarin, and Hebrew (Asproudi, 2012; Fahn, 2003; Friedmann et al., 2009; Friedmann & Novogrodsky, 2011; Guasti et al., 2012; O'Grady, 1997; Puppo et al., 2016; Tyack & Ingram, 1977; Varnava & Grohmann, 2014; Wilhem & Hanna, 1992; Yoshinaga, 1996). However, studies in Cantonese, Mandarin, and English (Cheung & Lee, 1993; Kazuko et al., 2022; Stromswold, 1995, respectively) have reported that children performed more accurately on Obj-WQs. Meanwhile, other studies reported simultaneous acquisition of Sub-WQs and Obj-WQs among children in Japanese, Mandarin, and Romanian (Manita, 2016; Shi & Yang, 2022; Yoshinaga, 1996, respectively).

While investigating the acquisition of Sub-WQs and Obj-WQs, researchers have examined another deeper question on the acquisition of the wh-phrases *who* and *which*. Fahn (2003), Varnava and Grohmann (2014) observed that Mandarin-speaking and Greek-speaking children found *who* questions easier to acquire than *which* questions. Similarly, Guasti, Branchini, and Arosio (2012) found asymmetry persisted across both children and adults, with *who* showing higher accuracy rates in subject extraction compared to *which*. In Hebrew, Friedmann et al. (2009) and Friedmann and Novogrodsky (2011) found that *who* was easier to comprehend than *which* in the context of Obj-WQs. In contrast, Kazuko et al. (2022) found no significant difference between *who* and *which* questions in Mandarin Chinese, suggesting that the complexity of the *wh*-phrase did not affect the accuracy of responses.

Researchers across different languages have also investigated whether age influences the acquisition of Sub-WQs and Obj-WQs. Fahn (2003) found that age had no effect on children's acquisition of *wh*-questions in Mandarin. Wilhelm and Hanna (1992) reported that age had a minimal impact on the performance of *wh*-questions in English, with older children showing only slightly better results. Cheung and Lee (1993), Shi and Yang (2022), Varnava and Grohmann (2014), and Yoshinaga (1996) observed that age had an impact on the performance of *wh*-questions in Cypriot Greek, Mandarin, Japanese, and Cantonese, respectively. .

1.1. Wh-questions in Najdi Arabic

Wh-questions are categorized based on the original position of the *wh*-phrase before raising. In Sub-WQs, the *wh*-phrase raises from a subject position, as in example (1a). Conversely, Obj-WQs involve the *wh*-phrase raising from an object position, as in example (1b).

1) a. $[mi:n]_i$ *kalam* t_i *Ahmad ?*
    who   called.3MSG   Ahmad
    'who called Ahmad?'

   b. $[ʔæj\ walad]_i$ *kalam*   *Ahmad* t_i?

    which boy   called.3MSG   Ahmad

    'which boy did Ahmad call.'

Albaty (2013) classified *wh*-phrases in NA into two main types: argument and adjunct *wh*-phrases. Argument wh-phrases in NA include *mi:n* 'who,' *wɪʃ* 'what,' *kæm* 'how many,' and *ʔæj* 'which.' Among these *wh*-phrases, *mi:n* and *ʔæj* are the most commonly used with both Sub-WQs and Obj-WQs. *ʔæj* is considered a complex structure consisting of two constituents: *ʔæj* and a noun phrase (NP), whereas *mi:n* is a simpler structure consisting of a single constituent. In NA, *wh*-phrases typically move to the left periphery of a clause adjacent to the verb, leaving a trace in their original position.

1.2. Aim of the study and Hypotheses

Given the lack of empirical research on the acquisition of Sub-WQs and Obj-WQs in NA, further studies are needed to address this gap and highlight the contribution of Arabic in this topic. The goal of this study is to contribute to *wh*-question acquisition studies by providing a detailed experimental investigation of the acquisition of Sub-WQs and Obj-WQs while also exploring the effects of different *wh*-phrases. Based on the previous literature, we expected the following outcomes:

H_1: NA-speaking children acquire Sub-WQs earlier than Obj-WQs.

H_2: There is an asymmetry in the acquisition of *mi:n* 'who' and *ʔæj* 'which' questions, with higher performance on *mi:n* questions.

H_3: Age has a significant effect on the acquisition of Sub-WQs and Obj-WQs with NA-speaking children.

The subsequent sections are organized as follows: Section 2 provides a brief overview of *wh*-questions in Najdi Arabic. Section 3 reviews key studies and theoretical backgrounds related to the acquisition of Sub-WQs and Obj-WQs. Section 4 outlines the experimental design used to assess children's comprehension of Sub-WQs and Obj-WQs. Section 5 presents the major findings of the experiment. Section 6 discusses the implications of the findings. Finally, section 7 concludes the paper and offers suggestions for future research.

2. Previous studies

The acquisition of Sub-WQs and Obj-WQs has attracted extensive attention due to their syntactic complexity, the importance of the topic in syntactic theories, and the cross-linguistic variation in developmental patterns. This section reviews cross-linguistic research supporting three major patterns: the earlier acquisition of Sub-WQs, the earlier acquisition of Obj-WQs, and the simultaneous acquisition of both forms. It also examines key theoretical accounts proposed to explain this variation.

2.1. Cross-linguistic studies on the acquisition of subject and object Wh-questions

   Prior Acquisition of Subject Wh-Questions

A common finding across several languages is that Sub-WQs tend to be acquired earlier or more easily than Obj-WQs. In English, studies by Tyack and Ingram (1977), Wilhelm and Hanna (1992), and Yoshinaga (1996) demonstrate a developmental preference for Sub-WQs. Wilhelm and Hanna's (1992) study, involving 11 monolingual English-speaking children aged 3;4 to 4;7, showed that children produced and comprehended Sub-WQs more accurately than Obj-WQs. Sub-WQs with who-question reached 57.6% accuracy in production and 81.8% in comprehension, compared to 33.3% and 90.9%, respectively, for Obj-WQs. Regarding the

effect of age, they reported that age had a minimal impact on the performance of *wh*-questions in English, with older children showing only slightly better results, 6.7% and 5.6%.

Beyond English, other studies have also reached different findings. Fahn (2003) tested 42 Mandarin-speaking children aged 4;0–5;11 using a production task and found a sharp asymmetry: Sub-WQs were produced with 97.2% accuracy, compared to only 59.9% for Obj-WQs. Notably, no significant difference in performance was observed across the different age groups, suggesting that the asymmetry is stable during this developmental period. Guasti et al. (2012) examined 35 Italian-speaking children aged 3;11–5;11 and 20 adults, and found that both groups exhibited a subject-object asymmetry, particularly in questions involving the *wh*-phrase *who*. Accuracy was higher for *who* Sub-WQs questions 92% than for *who* Obj-WQs 79%. However, in questions involving the *wh*-phrase *which*, the pattern was more complex. Children tended to drop the subject and adults used passivization, and no subject/object asymmetry was evident in the correct responses for both children and adults. Older children in this age range showed overall better performance but still showing the asymmetry, indicating age-related improvement without eliminating structural effects. Friedmann et al. (2009) reported similar findings among 22 Hebrew-speaking children aged 3;7–4;10. Sub-WQs were easier to comprehend than Obj-WQs, with *which* Obj-WQs being particularly challenging with 58% accuracy compared to *who* Obj-WQs with a 75% accuracy. Further, Friedmann and Novogrodsky (2011) examined acquisition of wh-question among children with syntactic-specific language impairment (SLI). They studied 28 older children with (SLI), aged 9;3–12;0, They found significant difficulties with Obj-WQs. Accuracy for *which* Obj-WQs was 58%, while *who* Obj-WQs were higher at 75%.

Prior Acquisition of Object Wh-Questions

Although less common, some studies report earlier acquisition of Obj-WQs. Cheung and Lee (1993) studied Cantonese-speaking children aged 2;6–5;0 and found a consistent object advantage across verb types. Obj-WQs such as *who* were understood with 90% more accuracy than *who* Sub-WQs, with 76%, even among the younger children. Notably, children's performance improved with age, but the Obj-WQs advantage persisted. Kazuko et al. (2022) tested 22 Mandarin-speaking children aged 5;3–6;2 and found a clear object advantage with no effect of *wh*-phrase type *who* and *which* observed. Stromswold (1995) examined spontaneous speech data from 12 English-speaking children aged from 1;2 to 6;0. She found that Obj-WQs were often acquired earlier or at the same time as Sub-WQs. The mean age of first use was 2;3.4 for Obj-WQs and 2;5.2 for Sub-WQs.

Simultaneous Acquisition of Subject and Object Wh-Questions

Other studies report a lack of asymmetry between Sub-WQs and Obj-WQs. Yoshinaga (1996) studied 30 Japanese-speaking children aged 2;4 to 5;0, found no significant differences in accuracy between question types (p = .2347). Performance improved with age, but Sub-WQs and Obj-WQs appeared equally accessible throughout the development track, with 26.3% for Sub-WQs and 31.3% with Obj-WQs. Shi and Yang (2022) tested 90 Mandarin-speaking children and also found no subject-object asymmetry; even the youngest age group (3-year-olds) achieved over 80% accuracy across conditions, with older children showing a significant improvement (p < .01 between each age level).In Romanian, Manita (2016) also observed simultaneous acquisition by analyzing spontaneous speech data with children aged 1;9 to 3;1. However, the findings showed mixed preferences for the *wh*-phrase depending on the question type. Children showed a stronger preference for *who* in Sub-WQs, achieving 100% and 66.7% accuracy, and similarly, 100% and 66.7% when using *what* in Obj-WQs.

2.2. Theoretical Proposals on the Acquisition of Subject and Object Wh-Questions

The acquisition of Sub-WQs and Obj-WQs has been the focus of several competing theoretical accounts, each offering explanations for why children often find Sub-WQs easier to acquire than Obj-WQs,though this pattern is not universal. One widely inflential proposal is O'Grady's (1997) *Developmental Law*, which attributes difficulty to the computational complexity of interrogatives, determined by the syntactic distance between the *wh*-phrase and its associated gap. In Sub-WQs, this distance is minimal—the *wh*-phrase either remains in situ or crosses only a single phrase boundary, such as the inflectional phrase (IP). In contrast, Obj-WQs require movement across both the IP and verb phrase (VP), increasing processing demands. Wilhelm and Hanna (1992) supported this structural view but also highlighted the role of discourse and pragmatic factors, suggesting that children may prefer Sub-WQs because topics and agents are more frequently subjects in conversation. They also observed a developmental preference for *who* over *what*, possibly influenced by the animacy property of the former, as animate referents are more often subjects and agents in early child language.

Another account focuses on morphosyntactic interference during movement. Guasti et al. (2012) found that in Italian, object *wh*-phrases move in multiple steps before reaching the left periphery. This intermediate movement can disrupt subject-verb agreement, leading to attraction errors, where the verb mistakenly agrees with the object rather than the subject. Children were particularly vulnerable to these errors and often compensated through strategies such as topicalization or the use of null subjects. These findings suggest that object questions are structurally more fragile, making them harder to acquire.

A contrasting view is presented in Stromswold's (1995) *Antecedent Government Hypothesis*, which proposes that object traces are simpler because they are directly governed by the verb through theta-government, while subject traces are more complex because they rely on the government of the antecedent . This approach predicts an early acquisition of Obj-WQs. Cheung and Lee (1993), on the other hand, proposes a pragmatic, rather than syntactic, analysis for the object-WQs preference. In their study, they examined Cantonese-speaking children, who performed better on Obj-WQs than Sub-WQs. They challenged the

syntactic explanation, arguing that Cantonese lacks overt *wh*-movement; thus the concept of government concept would not be in play. Alternatively, they argued that the observed asymmetry may instead reflect interpretive factors, such as the presuppositional complexity of Sub-WQs or the fact that Obj-WQs allow for more contextual information to be available before the *wh*-phrase appears.

In Romanian, Manita (2016) found no significant difference in the comprehension of Sub-WQs and Obj-WQs amongchildren. She supported Stromswold's (1995) Vacuous Movement Hypothesis (VMH), which posits that both question types are acquired simultaneously because they involve the same syntactic operation. According to this view, children apply a single movement rule to both Sub-WQs and Obj-WQs, moving the *wh*-phrase to the sentence-initial position and leaving a gap behind. As a result, no structural asymmetry arises, allowing for the parallel development of the two forms.

3. Methodology

Participants

The study involved 21 monolingual Najdi Arabic (NA)-speaking children who were born and raised in the city of Buraydah, located in the region of Qassim in the Kingdom of Saudi Arabia. Gender distribution was balanced as much as possible, and participants were randomly selected. Children were divided into three age groups to observe changes in the acquisition process, each separated by a one-year interval, ranging from approximately 3 to 6 years old. This age range was chosen because the *wh*-phrases *who* and *which* typically begin to appear in children's vocabulary (Al-Buainain, 2002; Hamdan & Hamdan, 2020; Smadi, 1979; Stromswold, 1995). Additionally, a control group of five native NA speakers aged between 20 and 30 years was included in the study to provide a baseline for comparison with the children's acquisition.

Materials

The acquisition of Sub-WQs and Obj-WQs was examined through a truth value judgment task (TVJT), following the methodological framework of Crain and Thornton (1998). Although Crain and Thornton's (1998) TVJT is adopted, pictures were used instead of fully acting out scenes with props. This is because today's children are more engaged with technology, making it easier to capture their attention through screen-based activities. A total of 12 stimuli were presented through slides, each showing figures performing actions along with a recorded voice describing the scene. For training purposes, two additional slides were used.. Considering Guasti et al.'s (2012) observation of the ambiguity of Sub-WQs and Obj-WQs in verb-subject languages, verb agreement with gender was used to distinguish between the two question types. Therefore, gender distinctions were intentionally incorporated into the characters in the stimuli. For instance, Sub-WQs used masculine agreement on the verb as in example (5a), while Obj-WQs used feminine agreement as in example (5b). The study utilized a tablet computer equipped with a speaker. Moreover, a puppet character named Arnoob and Correct/Wrong buzzers were used to create an engaging and reasonable context for the children to perform the tasks. Children's performances were voice-recorded and transcribed by the experimenter on a score sheet.

2) a. *miːn   jʊðˤrɪb   ʔl-bɪsæh?*

   who   hit.3SG.M   the-cat

   'who is hitting the cat?'

   b. *miːn   tʊðˤrɪb   ʔel-bɪsæh?*
   who   hit.3SG.F   the-cat
   'who is the cat hitting?'

Procedures

The experiment was divided into two sections: training and naming tasks followed by a TVJT. Prior to testing, the training and naming tasks were performed to ensure that participants are familiar with the procedure, vocabulary, and characters shown in each scene. In the TVJT, the session will start with a slide containing a picture and a pre-recorded voice describing the scene.

After the description, the puppet *Arnoob* will be asked a question about either the subject or object shown in the scene. Participants will then judge the accuracy of Arnoob's response, pressing the Correct buzzer if the answer is true and the Wrong buzzer if it is not. After that, they will be asked a follow-up question to confirm that their judgment is based on a correct understanding of the scene. The same procedure will be administered to both adults and children. *Scores and Data Analyses*

Responses will be considered correct if they matched the targeted response, scored with 1 for accurate and 0 for inaccurate answers yielding a maximum of 12 points for both Sub-WQ and Obj-WQ. A paired t-test will be used to compare performance among the same participants on different question types and *wh*-phrase, while a one-way ANOVA will be used to compare performance across the three age groups.

4.   Results

Children scored higher on Sub-WQs (88.89%, 85.71%) compared to Obj-WQs (74.60%, 73.02%). They performed similarly on both *Miːn and ʔæj wh*-phrases, showing a consistent pattern across the two types. Among the age groups, children in KG3 performed the best overall with 88.10%, while those in KG2 had the lowest accuracy at 73.81%.The control group scored 100% across all conditions, confirming the clarity of the task and providing a baseline for assessing children's performance. Table 1 provides the details of the results.

Table1

Number and Percentage of Correct Responses for all Age Groups

Age Group	Sub-WQs		Obj-WQs		Total
	Miːn	*ʔæj*	*Miːn*	*ʔæj*	
KG1	(19/21)	(19/21)	(14/21)	(15/21)	(67 / 84)
(N=7)	90.48%	90.48%	66.67%	66.67%	79.76%
KG2	(18/21)	(16/21)	(14/21)	(14/21)	(62 / 84)
(N=7)	85.71%	76.19%	66.67%	66.67%	73.81%
KG3	(19/21)	(19/21)	(19/21)	(17/21)	(74 / 84)
(N=7)	90.48%	90.48%	90.48%	80.95%	88.10%
Total	(56 / 63)	(54 / 63)	(47 / 63)	(46 / 63)	
	88.89%	85.71%	74.60%	73.02%	

Note. KG1 = ages 3 to 4, KG2 = ages 4 to 5, KG3 = ages 5 to 6.

4.1.   Children's comprehension of Sub-WQs and Obj-WQs

A paired samples t-test was conducted to compare the performance of Sub-WQs and Obj-WQs with NA-speaking children.

Table 2

Paired Samples T-Test of Children's Comprehension of Sub-WQs and Obj-WQs

			t	df	p
Sub-WQs	Obj-WQs	Student's t	2.65	20.0	0.015

Note. H_a $\mu_{Measure\ 1\ -\ Measure\ 2} \neq 0$

Table 2 shows a t-value of 2.65 with 20 degrees of freedom and a p-value of 0.015. Since the p-value is below the conventional alpha level of 0.05, the difference between Sub-WQs and Obj-WQs is statistically significant. Children performed better on Sub-WQs, with an average score of 87.3%, compared to 73.8% for Obj-WQs. These findings indicate that Sub-WQs are acquired more successfully than Obj-WQs. Therefore, the results support H_1, which predicted that NA children acquire Sub-WQs earlier than Obj-WQs.

4.2.   The Effect of Wh-phrase Type on Children's Comprehension of Sub-WQs and Obj- WQs

A paired samples t-test was conducted to compare the performance of Sub-WQs and Obj- WQs on different *wh*-phrases *miːn* 'who' and *ʔæj* 'which' with NA-speaking children.

Table 3

Paired Samples T-Test of Wh-phrase Type's Effect on Children's Comprehension of Sub-WQs and Obj- WQs

			t	df	p
miːn -questions	*ʔæj* -questions	Student's t	0.719	20.0	0.480

Note. H_a $\mu_{\text{Measure 1 - Measure 2}} \neq 0$

The results in Table 3 showed a t-value of 0.719 with 20 degrees of freedom and a p-value of 0.480. Since this p-value is greater than the conventional alpha level of 0.05, the difference between *miːn* and *ʔæj* is not statistically significant. Therefore, we fail to reject the null hypothesis of H_2, meaning that the performance on *miːn* and *ʔæj* are statistically similar.

4.3. The Impact of Age on Children's Comprehension of Sub-WQs and Obj-WQs

A one-way ANOVA assessed whether age influences the acquisition of Sub-WQS and Obj-WQs with NA-speaking children.

Table 4

One-way ANOVA (Fisher's) of Age's effect on children's Comprehension of Sub-WQs and Obj-WQs

	F	df1	df2	P
Sub-WQs and Obj-WQs	0.706	2	18	0.507

Note. H_a $\mu_{\text{Measure 1 - Measure 2}} \neq 0$ for at least one group

The analysis in Table 4 showed an F-value of 0.706 with 2,18 degrees of freedom and a p-value of 0.507. Since this p-value is greater than the conventional alpha level of 0.05, the effect of age on performance is not statistically significant. Thus, this does not support H3, suggesting that the age difference of participants does not have an impact on children's comprehension of Sub-WQs and Obj-WQs in NA.

5.   Discussion

The most significant finding of this study was that Sub-WQs were acquired more successfully than Obj-WQs (p = 0.015, t = 2.65). This finding aligns with cross-linguistic research studies (Asproudi, 2012; Del Puppo et al., 2016; Fahn, 2003; Friedmann et al., 2009; Friedmann & Novogrodsky, 2011; Guasti et al., 2012; O'Grady, 1997; Tyack & Ingram, 1977; Varnava & Grohmann, 2014; Wilhelm & Hanna, 1992; Yoshinaga, 1996), which report that Sub-WQs are generally easier for children to acquire. However, the current findings challenge other cross-linguistic research studies (Cheung & Lee, 1993; Deming Shi & Xiaolu Yang, 2022; Manita, 2016; Stromswold, 1995; Kazuko et al., 2022; Yoshinaga, 1996), which suggest that Sub-WQs are not necessarily easier to acquire. To better understand these conflicting results of the cross-linguistic research studies, it is crucial to focus specifically on studies that employed the same methodology or language-specific properties. A possible explanation lies in the syntactic properties of the languages examined. Cantonese, Mandarin, and Japanese are classified as *wh*-in-situ languages, where *wh*-phrases remain in their original position within the sentence. As a result, both Sub-WQs and Obj-WQs maintain the same surface structure, which helps minimize processing differences between them. In contrast, languages such as Arabic, Italian, English, and Hebrew exhibit overt *wh*-movement, where the *wh*-phrase must be moved to the front of the sentence to form a question (see Albaty (2013) for a general discussion on wh-question in NA). This movement can increase syntactic complexity and processing demands, especially in Obj-WQs where the *wh*-element moves across a longer distance than Sub-WQs. Therefore, children acquiring *wh*-in-situ languages may not show the same performance advantage for Sub-WQs that is commonly observed in *wh*-movement languages.

The current findings argue against the Antecedent Government Hypothesis (AGH) (Stromswold, 1995), which proposes that Obj-WQs are acquired before Sub-WQs. This hypothesis suggests that object traces are simpler because they are directly governed by the verb through theta-government, while subject traces are more complex because they rely on antecedent government. However, this prediction is not borne out in NA. Second, this claim of antecedent government being more difficult is

based on English, where Sub-WQs become ungrammatical in long-distance extractions due to a violation of the Empty Category Principle (ECP), as illustrated in example (3a). However, the absence of ECP violations in NA may explain the difference in findings, as long-distance extractions in NA are grammatical, as shown in (3b). This may account for the contrast in findings and challenge the assumption that Obj-WQs are acquired before Sub-WQs.

3) a. *Who do you hope that will interview the President?

   b. | *miːn* | *tɪtmanna* | *illi* | *raħ* | *jeqaabel* | *ʔl-rajes?* |
       |--------|------------|--------|-------|------------|-------------|
       | Who | hope.3MSG | that | will | meet.3MSG | the-president? |

   Lit. '(who do you hope that he will meet the president?)'

The second major finding of this study focuses on the role of *wh*-phrase type *miːn* 'who' and *ʔæj* 'which' in the acquisition of Sub-WQs and Obj-WQs. The analysis of the data revealed no significant difference between *miːn* 'who'and *ʔæj* 'wich' (p = 0.480, t = 0.719), indicating that NA children acquire both *wh*-phrases at a similar rate. This contrasts with findings from languages such as Mandarin, Cypriot Greek, Hebrew, and Italian, where *which*-questions are more challenging (Fahn, 2003; Friedmann et al., 2009; Friedmann & Novogrodsky, 2011; Guasti et al., 2012; Varnava & Grohmann, 2014). One possible explanation for the lack of asymmetry in NA is that *miːn* 'who' and *ʔæj* 'which' replace one another in various contexts , making them equally accessible for children to acquire.

The third key finding of this study examines the role of age of Sub-WQs and Obj-WQs acquisition. The results indicate that age had no significant effect on children's performance (p = 0.507, F = 0.706), which means that comprehension remains consistent across age groups. Similar results were found in English and Mandarin (Fahn, 2003; Wilhem & Hanna, 1992, respectively), where age had no significant effect on acquisition, and contrasts with studies in Cantonese, Mandarin, Japanese, and Cypriot Greek (Cheung & Lee, 1993; Shi & Yang, 2022; Varnava & Grohmann, 2014; Yoshinaga, 1996), where younger children struggled more than older ones. Overall, this finding suggests that NA children may acquire Sub-WQs and Obj-WQs earlier than previously assumed due to the lack of age effect. Research on this topic remains limited, and further studies are needed to confirm whether this pattern holds within Arabic varieties and across languages.

6. Conclusion

The current study addresses the acquisition of *wh*-questions in Najdi Arabic (NA) and whether subject *wh*-questions (Sub-WQs) are acquired earlier than object *wh*-questions (Obj-WQs). Given the conflicting findings across languages regarding the order of acquisition, it was essential to consider developmental and structural factors such as the syntactic properties of *wh*-movement and the role of *wh*-phrase type and age. We employed the Truth Value Judgment Task (TVJT) of Crain and Thornton (1998), using illustrated scenarios to ensure clarity and control, as this method has proven effective in capturing children's grammatical knowledge.

Our findings show that NA-speaking children acquire Sub-WQs with greater ease and accuracy than Obj-WQs, with performance on Sub-WQs reaching up to 88.89%. The results further revealed that children performed consistently across both *wh*-phrases, *miːn* 'who' and *ʔæj* 'which', suggesting that *wh*-phrase type did not significantly affect comprehension. Additionally, while age had minimum influence, the performance patterns were stable across groups, indicating that comprehension of *wh*-questions in NA begins to stabilize at an early stage.

This study makes several contributions. It is the first experimental investigation into the acquisition of Sub-WQs and Obj-WQs in NA. It also contributes to cross-linguistic research by highlighting the structural factors that support early comprehension of Sub-WQs, a pattern reported in other languages such as English, Italian, and Hebrew. Furthermore, the current findings challenge proposals such as the *Antecedent Government Hypothesis* (AGH), which predicts the earlier acquisition of Obj-WQs. Instead, they support theories emphasizing syntactic complexity, such as O'Grady's (1997) *Developmental Law*.

We believe that these findings are valuable for both empirical and theoretical discussions on *wh*-question acquisition. While further studies with larger and more diverse samples are needed to confirm and expand on these results, the current work offers new insights into the developmental path of *wh*-question comprehension in NA-speaking children.

Conflicts of Interest: The authors declare no conflict of interest.
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References
[1] Albaty, Y. A. (2013). Wh-in-situ in Najdi Arabic. *Working Papers of the Linguistics Circle*, *23*(1), 1–14.
[2] Al-Buainain, H. (2002). Developmental stages of the acquisition of negation and interrogation by children native speakers of Qatari dialect. *Journal of the College of Humanities and Social Sciences*, *25*, 7–42. https://doi.org/10576/8344
[3] Asproudi, E. K. (2012). Wh-interrogatives in early L1 Greek: Comprehension vs. production. *The ITB Journal*, *13*(1), 2. https://doi.org/10.21427/D78Q8Z
[4] Cheung, & Lee. (1993). Cantonese-speaking children's comprehension of wh-questions. *The Proceedings of the 25th Annual Child Language Research Forum*, 106–117.
[5] Crain, S., & Thornton, R. (1998). *Investigations in universal grammar: A guide to experiments on the acquisition of syntax and semantics.* The MIT Press.
[6] Fahn, R.-L. S. (2003). Chinese-speaking children's production of wh-questions. *Concentric: Studies in Linguistics*, *29*(2), 82–117.
[7] Friedmann, N., Belletti, A., & Rizzi, L. (2009). Relativized relatives: Types of intervention in the acquisition of A-bar dependencies. *Lingua*, *119*(1), 67–88. https://doi.org/10.1016/j.lingua.2008.09.002
[8] Friedmann, N., & Novogrodsky, R. (2011). Which questions are most difficult to understand?: The comprehension of wh questions in three subtypes of SLI. *Lingua*, *121*(3), 367–382. https://doi.org/10.1016/j.lingua.2010.10.004.
[9] Guasti, M. T., Branchini, C., & Arosio, F. (2012). Interference in the production of Italian subject and object wh-questions. *Applied Psycholinguistics*, *33*(1), 185–223. https://doi.org/10.1017/S0142716411000324
[10] Hamdan, J. M., & Hamdan, H. J. (2020). Emergence and development of wh-questions in Jordanian Arabic-speaking children: A longitudinal study. *East European Journal of Psycholinguistics*, *7*(2), 28–55. https://doi.org/10.29038/eejpl.2020.7.2.ham
[11] Kazuko, Y., Dal Farra, C., Gonzalez, A., Hein, J., Silleresi, S., Avellana, A., Huang, A., Ilori, J., Gayathri, G., & Pintér, L. (2022). Children's wh-questions across languages: Some preliminary results. *Proceedings of the Annual Boston University Conference on Language Development*, *2*, 890–903. https://doi.org/10281/399918
[12] Manita, C. (2016). The subject–object asymmetry in the acquisition of wh-questions in Romanian. *Bucharest Working Papers in Linguistics*, *18*(1), 5–20.
[13] O'Grady, W. (1997). *Syntactic development*. University of Chicago Press.
[14] Puppo, G. del, Pivi, M., & Cardinaletti, A. (2016). 5. Elicited production of who-questions by school-aged Italian-speaking children. In P. Guijarro-Fuentes, M. Juan-Garau, & P. Larrañaga (Eds.), *Acquisition of Romance Languages: Old Acquisition Challenges and New Explanations from a Generative Perspective* (pp. 121–140). De Gruyter Mouton. https://doi.org/10.1515/9781614513575-007
[15] Shi, D., & Yang, X. (2022). *Testing Intervention Effects in Acquisition of Wh-argument Questions by Mandarin-Speaking Preschoolers.* http://www.lingref.com/bucld/46/BUCLD46-53.pdf
[16] Smadi, O. M. (1979). *The acquisition of the Jordanian Arabic interrogation and negation by a three-year-old native speaker of Jordanian Arabic*. The University of Texas at Austin.
[17] Stromswold, K. (1995). The acquisition of subject and object wh-questions. *Language Acquisition*, *4*(1–2), 5–48. https://doi.org/10.1080/10489223.1995.9671658
[18] Tyack, D., & Ingram, D. (1977). Children's production and comprehension of questions. *Journal of Child Language*, *4*(2), 211–224. https://doi.org/10.1017/S0305000900001616
[19] Varnava, M., & Grohmann, K. K. (2014). Developments in the acquisition of wh-interrogatives in Cypriot Greek. *Linguistic Variation*, *14*(1), 69–108. https://doi.org/10.1075/lv.14.1.04var
[20] Wilhem, A., & Hanna, K. (1992). On the acquisition of wh-questions. *Calgary Working Papers in Linguistics*, *15*, 87–102. https://doi.org/1880/51356
[21] Yoshinaga, N. (1996). *Wh-questions: A comparative study of their form and acquisition in English and Japanese*. University of Hawai'i at Manoa. https://doi.org/10.11431/secondlanguage2002.1.0_3

Appendix A

Story Sample

Story: /bi haːðiː ʔisuːra fiː arbaʕ ħajawaːnaːt: kalb, bissa, baːta, wa gɪrd. gaːl ilkalb lilgɪrd: ʔismaʕ ! ʃraːjak int tɪdːɪrb ilbissa wana baʕdː ilbatːaʔ. hazz raːsah ilgɪrd w gaːl: laː, mustaħiːl! ilbissa gawiːja marra, axaːf tɪdːɪrbni. baʕdeːn, ilgɪrd ʕadː ilbatːa, wilbissa dːarabat ilkalb. bilʔaxiːr, ilkalb tˤaːħ mitaʔallim, wilbatːa sˤaːħat min ʕadːat ilgɪrd/ 'In this picture, there are four animals: a dog, a cat, a duck, and a monkey. The dog said to the monkey: Listen! How about you hit the cat and I bite the duck?. The monkey shook his head and said: Nooo, impossible! The cat is very strong—I'm afraid she'll hit me! Then, the monkey bit the duck, and the cat hit the dog. In the end, the dog fell down in pain, and the duck screamed from the monkey's bite.'

- Stimuli1: /ilħiːn ʕindina suʔaːl liʔarnuːb, ʔaj ħajawaːn ʕadː ilbatːa?/ 'Now we have a question for Arnoob, which animal bit the duck?'
  Arnoob: /mmm… ilkalb ʕadː ilbatːa/ 'Hmm… the dog bit the duck.'
  Targeted response: 'Pressing the wrong answer buzzer.'
  Experimenter: /ʔaħsant, tˤayyib miːn tittawaqqaʕ?/ 'Well done! So, who do you think it was?'
- Stimuli2: /ilħiːn ʕindina suʔaːl liʔarnuːb: miːn dːarabat ilbissa?/ 'Now we have a question for Arnoob, who did the cat hit?'
  Arnoob: /mmm… ilbissa dːarabat ilkalb/ 'Hmm… the cat hit the dog.'
  Targeted response: 'Pressing the correct answer buzzer.'
  Experimenter: /ʔaħsant/ 'Well done.'