# Bilingual Development in Children with Autism Spectrum Disorder from Newcomer Families

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# Summary

The home language environment and language abilities were compared between children with ASD and children with typical development, both from newcomer families. Children were in elementary school, mostly 6 and 7 year olds. The goal was to understand if there were differences in bilingual development between children with ASD and children with typical development the same age. Specifically, we wanted to understand if children with ASD have the capacity to become bilingual and whether this is supported by their communities, clinicians and educators. Key findings were as follows: Parents of children with ASD were often advised to use only or more English with their child, by friends as well as professionals. Children with ASD started to learn English at a younger age than the children with typical development and had much more exposure to English through preschool attendance and intervention. Children with ASD heard and spoke more English, and less of their heritage language, at home than the children with typical development. Regarding English abilities, the high verbal children with ASD had similar abilities to the children with typical development. In contrast, the high verbal children with ASD had lower abilities in their heritage language than the children with typical development. We conclude that children with ASD are more at risk than children with typical development for losing their heritage language. In other words, children with ASD have the capacity to be bilingual, but have limited opportunities to develop their heritage language. We end with recommendations for better supporting bilingual development in children with ASD from newcomer families.

# Background

## What is Autism Spectrum Disorder?

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder, which means children are born with this disorder. Children with ASD are usually delayed in their language development in the preschool years and their language abilities vary a great deal in later years. Some children with ASD develop language skills very close to their neurotypical peers while other children have low verbal abilities that persist. Children with ASD have life long deficits in social interaction and communication and they also exhibit restricted interests and repetitive behaviours.

## Bilingualism and ASD

When a child is diagnosed with Autism Spectrum Disorder (ASD), it can be very difficult for parents. They might struggle emotionally, have concerns about their child's future, have many questions about intervention services and wonder how they should use language in conversations with their child at home. For newcomer families, questions also arise about which language to use with their child because, typically, there is a heritage language spoken at home – the child's first language - and there is also the societal language, English, that is the child's second language. Because difficulties with language and communication are both implicated in ASD, this raises concerns about bilingualism for children with ASD. Parents and health practitioners often ask whether children with ASD are capable of learning two languages and becoming bilingual, or whether it would be better for that child's overall language development to only hear and speak one language.

### Importance of learning the heritage language and culture

Children from newcomer families can benefit in many ways from growing up speaking the heritage language. Children who can speak the heritage language can communicate more easily with their parents, who often are not fluent in English. Children who can understand the heritage language can participate fully in cultural events, deepen their understanding of their heritage culture and better develop an identity as a member of their cultural community. Learning the heritage language alongside English does not take away from children's long-term success in English, and in fact, bilingualism can confer some advantages in thinking skills and in learning to read. Bilingualism could open doors to educational and employment opportunities in the long term as well.

For children with neurodevelopmental disorders like ASD, communication and closeness with parents is even more vital than for their neurotypical peers. This is because parents are often companions and caregivers even when children reach adolescence. Therefore, continuing to learn the heritage language after diagnosis would have benefits for children with ASD.

## Research Goals and Methods

The goal of this research was to examine the language abilities and home language learning environment of bilingual children with ASD and bilingual children with typical development, both from newcomer families. We wanted to examine the capacity for bilingualism in the children with ASD, the support for bilingualism surrounding them, and whether their home language environments were different from other bilingual children.

School-age children were visited in their homes and their English language abilities were measured. Researchers recorded children's language while playing with them and while asking them to tell a story from a book. Children were also given a test to measure how many words they know in English. Some of the children with ASD had low verbal abilities, and so were not able to complete all these tasks. Researchers also gave a questionnaire as an interview to a parent, usually the mother. Parents were asked about their children's abilities in the heritage language and about their early language development. Parents were also asked about how much English versus the heritage language is spoken in the home among family members. Parents of children with ASD were also asked about what advice and support they have been given about raising their child bilingually after diagnosis and whether this had changed what language(s) they used with their child.

# Children and their Families in this Research

The two groups of children were similar in size, age, mothers' level of education, mothers' fluency in English, and heritage language/cultural backgrounds, as shown in Table 1 below. The children with ASD were diagnosed, on average, at slightly younger than 4 years (45 months). The children with ASD displayed a wide range of verbal abilities, but we placed them into two categories (high verbal and low verbal) based on what other researchers have done. The high verbal children (11/31) were those who could complete all our expressive language tasks and who could converse spontaneously with the researchers, demonstrating turn-taking skills. The low verbal group (20/31) included children who could participate in some tasks but did not produce much spontaneous speech and demonstrated echolalia. The low verbal group also included children who did not speak at all during our visit.

*Table 1. Characteristics of the Participants*

| | Bilinguals with ASD | Bilinguals with Typical Development |
|---|---|---|
| **Number of children** | 31 | 33 |
| **Age** | 85 months | 81 months |
| **Mother's education** | Most have post-secondary | Most have post-secondary |
| **Mother's fluency in English** | 2.29 / 4 | 2.39 / 4 |
| **Heritage language / culture** | Amharic<br>Arabic<br>Cantonese<br>Karen<br>Mandarin<br>Punjabi<br>Sinhala<br>Sindhi<br>Spanish<br>Urdu | Arabic<br>Cantonese<br>Hindi<br>Mandarin<br>Pashto<br>Punjabi<br>Spanish<br>Urdu |
| **Age of ASD diagnosis** | 45 months | N/A |

*Note: Age, Mother's fluency in English and Age of ASD diagnosis are group averages*

# Key Research Findings

## Advice to parents of children with ASD and support for children's bilingualism

Roughly half the parents of children with ASD reported that they had been given advice, by a healthcare professional, teacher or a friend, to switch to using only English with their child (16/30 families; because two of the children in the study were siblings, the total number of families is 30, not 31). Seven families decided to use primarily English at home with their child. The rest of the families used some combination of the heritage language and English at home, but the majority of these families reported using more English than the heritage language. Parents reported that their choice to use more English was influenced by professional advice, advice from friends, concern that their child would get confused, and desire for consistency between the intervention and school language and the home language. Parents reported that their choice to continue to use the heritage language was motivated by "naturalness" in communicating with their child, communication needs among extended family members, lack of proficiency in English and belief in their child's capacity for bilingualism. Importantly, only 8 families said that their use of the heritage language at home remained unchanged after diagnosis. A few families reported trying to switch to using English, but returned to speaking their heritage language. Regarding language intervention materials provided to parents by therapists, 23/30 said these materials were only in English. The other 7 parents reported that they were encouraged to adapt the materials themselves to the heritage language, or some materials were provided in the heritage language. Finally, many families expressed a desire to know more about how bilingualism will affect their child's development. Examples of parent responses are in Table 2 below.

In summary, these qualitative interviews point to some pressure being given to parents to use only English or more English with their children. The pressure is coming not only from clinicians and educators but also from friends who are members of their communities and the parents themselves. Although the majority of parents did not comply with using only English, it appears that most parents used more English than the heritage language and had little choice but to conduct home intervention activities in English.

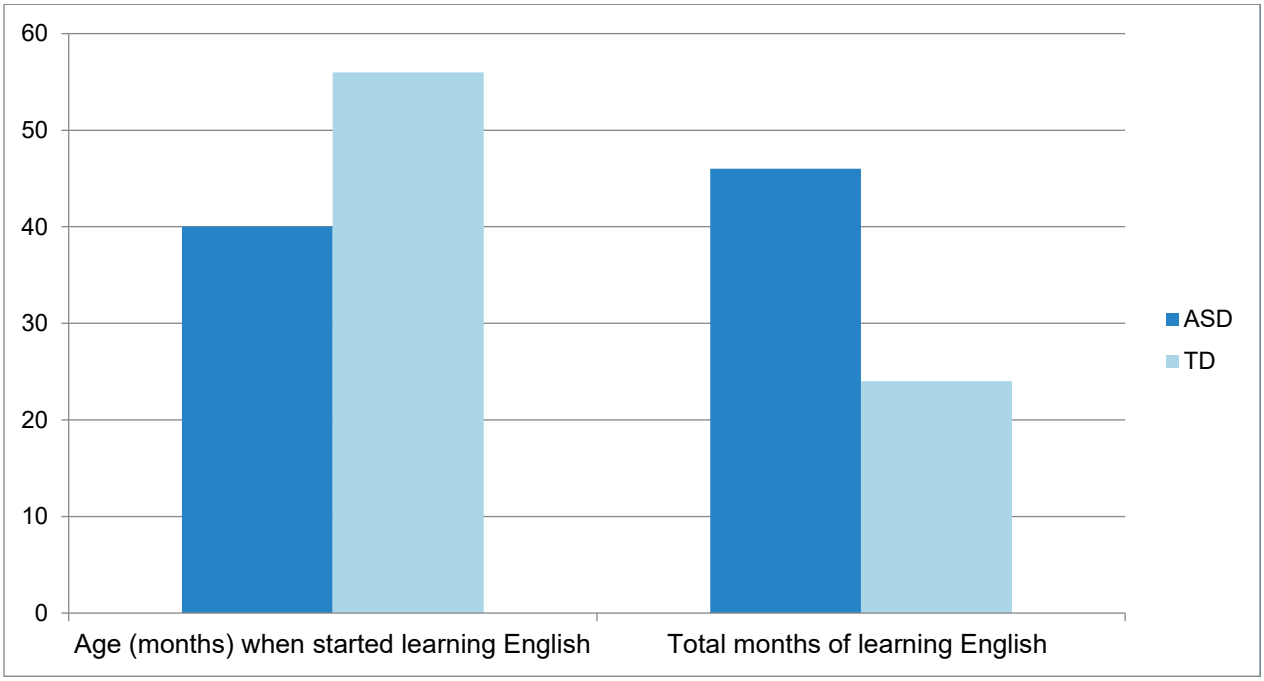
*Table 2. Examples of parent responses from the interviews*

| Theme | Parent Responses |
|---|---|
| Advice on Language Use | The paediatrician said the child was confused with 2 languages. The mother was advised to use just English since she lived in Canada. The SLP said that she didn't 'think' using two languages would affect his language. Because the SLP used [the word] 'think' – [it] was not convincing enough for the mother, so she chose to go with the paediatrician's recommendation and speak only English despite her poor proficiency in the language. |
| | Other parents have said that it is best to speak one language to simplify the language environment. |
| | It [using more English] was suggested by the daycare, and also, the extended family advised using more English with the child. |
| | When the child received his diagnosis, his SLP recommended using English, but the mother chose to speak Spanish. |
| | Their doctor told them to continue using both languages because even if the child wasn't expressing himself, he was still building the languages in his head. |
| | A therapist used Punjabi with the child at the preschool program. The mother has always been told to use both languages. |
| | "A few of the SLPs recommended I speak English but that I didn't have to do it. But there was one therapist I placed a lot of trust and she told me to continue speaking Spanish. She said she came from an immigrant family, somewhere in Europe, and she had a lot of experience working with children with autism. She recommended we speak Spanish and not English because my children were going to learn English anyway and there would be no interference. And that is what we chose to do." |
| Decisions about language use | Family ignored English-only advice and emphasized bilingualism. Mother prefers to use the Amharic during play but sometimes uses English. She feels using Amharic is easier for her and also she feels it is beneficial. |
| | Parents don't feel that the child needs to be bilingual as long as he can communicate in English. Even in their home country, they would have paid expensive tuition fees so their child could learn to speak English. |
| | Mother responded that it is hard for her [to use English] but not for her son. Sometimes he understands more English than Karen and sometimes she doesn't understand what he says. |
| | Mother said it is not natural for her to use English. She finds it more meaningful to say "I love you" in Spanish. Using Spanish [allows her to] teach her son the right way to speak in Spanish. She doesn't feel confident teaching him grammar in English. She is okay with him learning English properly at school but at home he needs to speak Spanish. |
| | Family was in complete disagreement about using only English. "Some people in the family only speak Punjabi. How about when we travel back to India?" |
| | Mother speaks Hindi because she wants her son to be connected to his culture and to communicate with his cousins. |
| | Before the child's diagnosis, they used Mandarin. After receiving the diagnosis, they decided to use only one language. The family made a decision to speak in English. |
| | Because the parents live in Canada, they speak more English in general. Also, the aides who come every day speak English, so they also copy the aides. They use more English with their son (who has ASD) than with their daughter. |
| | After the diagnosis, the mother felt that using only English wouldn't confuse him and that it would prepare him better for school. Initially, the family felt worried that the child would be confused if two languages were used. Eventually, the family decided that it felt more natural to use both Mandarin and English. |
| | "They give me the therapy and they give me the tools, but what language to speak is something I'm choosing to do and sometimes I question myself whether I'm harming or interfering with their [children's] language development. Maybe certain objectives won't be seen in the time they are supposed to because I'm speaking another language? I would have liked to know then what I know now. My children are definitely capable of learning two languages." |

## Children's language learning environments

The children with ASD started to learn English at a younger age (40 months – 3 ½ ) than the children with typical development (TD; 56 months – 4 ½ ). When our research started, the children with ASD had nearly twice as many months of learning English (46 months – almost 4 years) than their peers with TD (24 months – two years). Both differences are statistically significant. The early diagnosis of ASD followed by intensive therapy and participation in preschool programming increased the total amount of English exposure for the children with ASD.

*Figure 1. Comparison between children with ASD and children with TD for exposure to English*

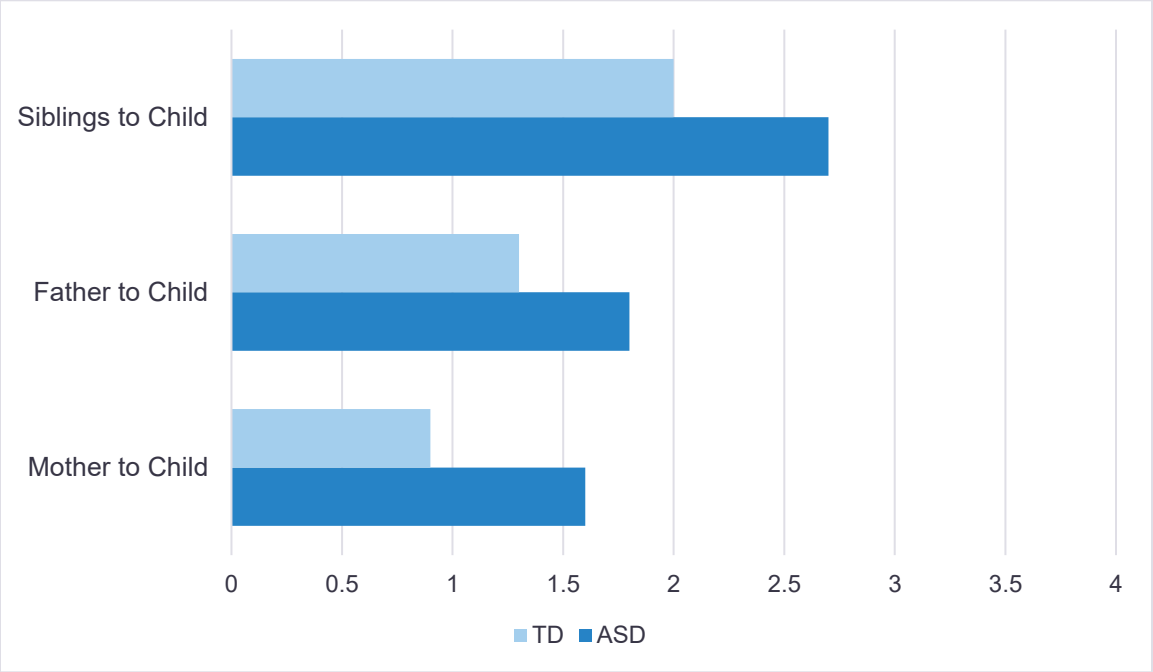



We asked parents questions about language use among family members. We asked what language family members spoke to the child and what language the children spoke to family members. Answers followed this rating scale:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **English never**<br>**Heritage Language always** | **English seldom**<br>**Heritage language usually** | **English 50%**<br>**Heritage language 50%** | **English usually**<br>**Heritage language seldom** | **English almost always**<br>**Heritage language almost never** |

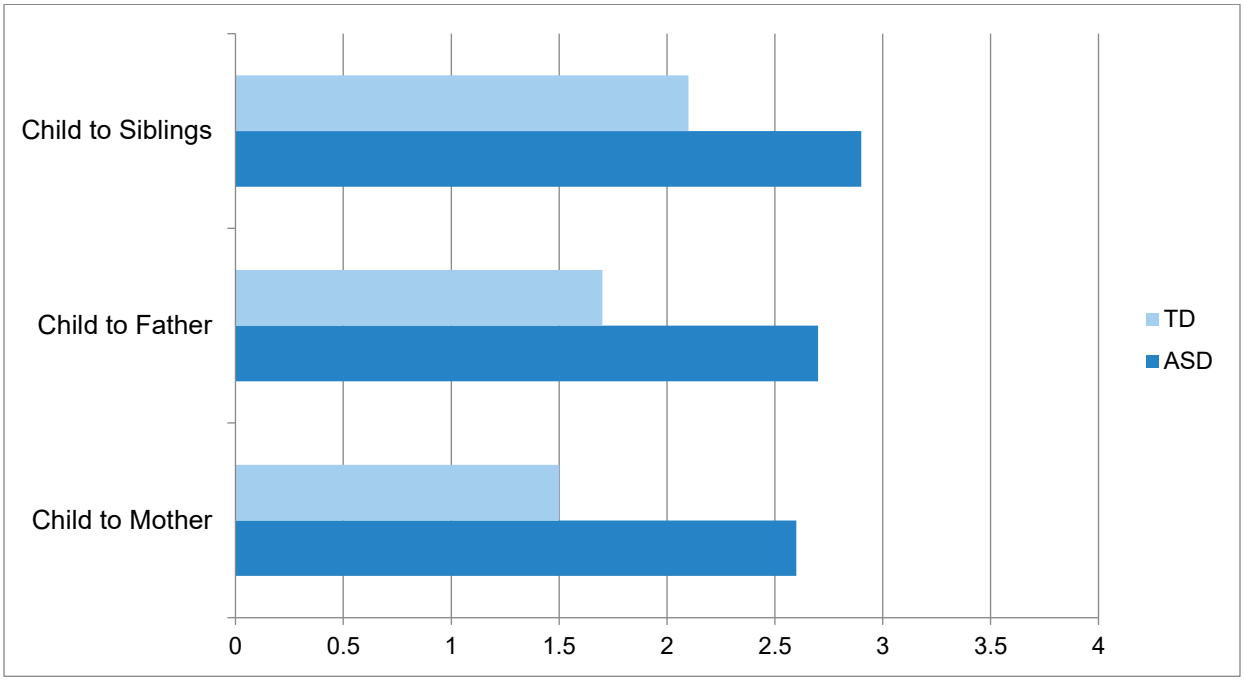
Children with ASD heard statistically significantly more English from their mothers than the children with TD (Figure 2 below). Children with ASD heard slightly more English from their fathers and their siblings, but the difference with the TD group was not statistically significant. When we looked at families where the child's mother spoke English almost always (point 4 on the rating scale above), we only found 1 family in the ASD group and 1 family in the TD group. Thus, even though children with ASD were hearing more English at home than children with TD, both groups of children were hearing some of their heritage language at home.

*Figure 2. Average rating scale scores for languages spoken to the child at home, for the ASD and TD groups. 0 means the heritage language is spoken always and 4 means English is spoken almost always*




Regarding what language the child speaks with family members, children with ASD spoke statistically significantly more English to their mothers and their fathers than the children with TD (Figure 3 below). Children with ASD spoke slightly more English to their siblings, but the difference with the TD group was not statistically significant. When we looked at families where the child spoke English almost always, (point 4 on rating scale), we found only 1 family in the TD group, but there were 9 families in the ASD group who reported this. Thus, the children with ASD were speaking more English at home than the TD children and some children with ASD were speaking English at home almost always.

Figure 3. *Average rating scale scores for languages the child speaks at home, for the ASD and TD groups. 0 means the heritage language is spoken always and 4 means English is spoken almost always*




## Children's abilities in English and in their heritage language

To compare children's abilities in English, we examined their scores on the Peabody Picture Vocabulary Test – a test that measures how many word they know in English. We also compared how long their sentences were and how many different words they used when playing with the researchers. For the children with ASD, only the children who completed these activities are included here (22/31). Results are reported for all the children with ASD who completed the tasks (22) and for the children who were high verbal (10) separately. See Table 3 below.

The children with ASD had statistically significantly lower scores for vocabulary knowledge and shorter sentences than the TD children. The children with ASD produced fewer different words than the TD children, but this difference was not statistically significant. Because children with ASD have difficulties learning language, we did not expect the entire group of children with ASD to have English abilities equal to the children with TD. But, when the high verbal children with ASD were examined separately, there were no significant differences between them and the TD children for vocabulary scores and sentence length. Thus, the high verbal children with ASD were able to catch up in English to bilingual neurotypical children the same age.

For the heritage language, we examined parent report on the child's early language development and current abilities in the heritage language. The children with ASD were more likely to have language delay in the early years, both the entire group and the high verbal children, than the TD children, as expected. The scores for current abilities in the heritage language were statistically significantly lower for both groups of children with ASD when compared to the children with TD. Thus, the high verbal children with ASD were not able to maintain their heritage language as well as bilingual neurotypical children the same age.

*Table 3. Comparing English and Heritage Language Abilities*

| | Bilinguals with ASD – all who completed task | Bilinguals with ASD – high verbal | Bilinguals with TD | Description |
|---|---|---|---|---|
| **English vocabulary size** | 66 | 81 | 83 | Average for monolinguals this age = 100 |
| **English sentence length** | 2.8 words | 4.0 words | 3.8 words | Average length in 15 minute play session |
| **Number of different words spoken in English** | 130 | 219 | 149 | In 15 minute play session |
| **Early language development on time?** | 52 | 58 | 93 | Range: 0 = severely delayed to 100 = on time |
| **How well does the child speak the heritage language?** | 30 | 33 | 65 | Range: 0= no proficiency to 100 = highest proficiency |

# Conclusions and Recommendations

## Conclusion # 1: Bilingual Capacity

All of the children with ASD could understand English and, of those who were verbal, they could speak English. Most children with ASD in this study could understand their heritage language to some extent and, of those who were verbal, they could speak it to some extent. The children with ASD who were high verbal were able to catch up to neurotypical bilingual children the same age in their English abilities.

***Recommendation:***

- Children with ASD have the capacity to be bilingual into the elementary school years. Advice to parents to restrict bilingualism for children with ASD is not supported by evidence.

## Conclusion # 2: Home Language Use

It is common for parents to be advised to speak only or mainly English with their child after an ASD diagnosis. The majority of parents used more English than the heritage language with their child during the elementary school years and had to do home intervention activities in English.

***Recommendations:***

- There is a need to raise awareness in newcomer communities and among clinicians and educators regarding encouragement and support for bilingualism in children with ASD.

- Parents would especially benefit from assistance in adapting home intervention activities into the heritage language and culture.

## Conclusion # 3: Language Abilities

Children with ASD started to learn English at an earlier age than children from newcomer families with typical development (TD). By the elementary school years, children with ASD had twice as much English exposure as the TD children. At home, children with ASD heard more English and spoke more English than the TD children. Both high verbal and low verbal children with ASD had had lower abilities in their heritage language than their bilingual age peers with TD. Bilingual children with ASD are at greater risk than their peers with TD for losing their heritage language as they grow older.

***Recommendation:***

- Children with ASD need additional support for their heritage language development to counteract how much exposure they have to English.

## Take-Home Message

Children with ASD struggle to maintain the heritage language because of early exposure to English, more exposure to English through intervention, more use of English and less use of the heritage language at home. In other words, the greater risk of losing the heritage language is not because children with ASD are incapable of bilingualism, it is because they are not getting the opportunity to become bilingual.

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