Often Encountered but Rarely Reported: Challenges in Selecting Language(s) for Intervention in Bi/Multilingual Children with Autism Spectrum Disorder

Malavi Srikar[1] Reny Raju[1] Nikita Dadlani[1] Divya Swaminathan[1] Prathiksha Vaidhyanathan[2] Shoba S. Meera[1]

[1] National Institute of Mental Health and Neuro Sciences, Bangalore, Karnataka, India
[2] Jupiter Hospital, Pune, Maharashtra, India

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Address for correspondence Shoba S. Meera, PhD, National Institute of Mental Health and Neuro Sciences, Hosur Road, near Bangalore Milk Dairy, Lakkasandra, Laljinagar, Wilson Garden, Bangalore 560029, Karnataka, India
(e-mail: ssmeera@nimhans.ac.in; ssmeeras@gmail.com).

Abstract

India is a socioculturally and linguistically diverse country. Most often individuals grow up exposed to more than one language. Apart from exposure to native and community languages, there is a growing preference for English as the language of formal education and employment. Previous studies demonstrated that bilingual children with autism spectrum disorder (ASD) develop language similar to their monolingual nonverbal IQ-matched ASD peers. However, most of these studies have been conducted in countries in which English is the primary language for majority of the population. Although existing studies support a bilingual environment for children with ASD, professionals still seem to advise families' use of a monolingual approach. This paper reviews and discusses factors that influence the selection of language(s) for intervention in young children with ASD in bi/multilingual environments. These are discussed under three areas namely, (1) language environment of the child, (2) parent/caregivers' perspectives regarding bi/multilingual exposure, and (3) medium of education and availability of intervention services. This paper also highlights the complexities involved in the language selection process for intervention using four case vignettes. Based on the review and findings from the case vignettes, it is evident that there is a need for (1) sensitizing fellow professionals regarding the increasing shift toward a bi/multilingual approach, (2) formulating guidelines for this decision-making process, and (3) continuing to develop an evidence base for adopting multilingual approach for intervention in a socioculturally and linguistically diverse country like India.

Keywords
- bilingual
- multilingual
- autism spectrum disorder
- intervention
- speech-language pathology

Introduction

India is a culturally and linguistically diverse country with 28 states and 8 union territories, recording a total of 121 identifiable languages of which 22 are official.[1] Often, individuals born and brought up in urban India are exposed to at least 2 or 3 different languages[2]—their native language, English, and/or another language spoken in the larger community. More recently, there has been a rise in the preference for English as the language of formal education and employment, making it an integral part of the country's linguistic repertoire. Though not a native language, English is now

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widely understood in most parts of urban India, making it the second most spoken language.[1] English is now used in high-level business/industrial sectors that involve the global community, in creative and academic publications, and in communication between literate individuals, making it the "language of the elite."[3] Speaking fluent English is thought to increase job opportunities and provide for better hourly wages. Individuals speaking fluent English earn an average of 34% more than those who do not.[4] Hence, current-generation parents, particularly those living in metropolitan cities, emphasize that their child attend English medium schools and learn to speak, read, and write English fluently. That said, a similar emphasis is made toward children learning their native language(s). Unique to the Indian scenario is the possibility of encountering more than one native language within the same family.[1] Additionally, these native languages may be very different from what the neighbors and/or individuals in the community speak (►**Fig. 1** for description of native and community language). Hence, children growing up in families with multiple language exposure are likely to be naturally bi/multilingual themselves.

An individual who can comprehend or speak two languages is considered a bilingual.[5] Similarly, an individual who can comprehend or speak in three or more languages is considered a multilingual. Studies have demonstrated that infants begin to process two languages as early as 11 months of age.[6,7] Research has shown that exposing an infant to two or more languages early on does not cause confusion, rather leads to better language learning.[8] Bilinguals follow a similar course of language development in each language as monolinguals.[5] Additionally, bi/multilinguals when compared with monolinguals have an advantage in terms of better literacy,[8] academic achievements,[8] social flexibility,[9] executive functions,[8–13] and better protection against cognitive decline with age.[8,10,12]

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by challenges in social communication and presence of restricted repetitive patterns of behavior.[14] Although the current prevalence of ASD in the USA is reported at 1.85%[15] in children 8 years of age, the global prevalence is projected at 0.62%,[16] and in India it is roughly between 0.23 and 1.4% in children between 0 and 18 years of age.[17,18] Individuals with ASD often have difficulty in developing both verbal (spoken output) and nonverbal language skills (e.g., use of gestures) to communicate their needs and understand what others say. About 25 to 30% of these children either fail to develop functional language or are minimally verbal.[19] These children therefore require speech and language intervention to help develop their language and communication skills.

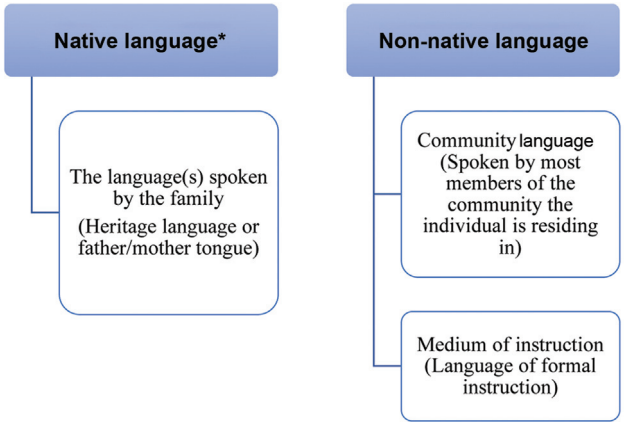

Fig. 1 Terminologies associated with language environment as defined for the purpose of this study. *It is possible for one individual to have more than one native language(s).

Studies (largely case series, parental interviews, surveys, and small-sample intervention) have reported that bilingual children with ASD develop language similar to their monolingual nonverbal IQ-matched ASD peers.[20–27] Yet, we see professionals (family physicians, pediatricians, teachers, psychologists, and even speech-language pathologists) often recommend the use of monolingual approach for bi/multilingual families of children with ASD.[28–35] Hence, there is an evident mismatch in what current evidence shows and what is practiced. As rightly pointed out by Lim et al,[30] no overt reason is discussed in support of a monolingual approach and the decision of language selection for intervention seems to be based on assumptions and not on concrete data. Further, it is important to note that available literature around bi/multilingual exposure for children with ASD is largely based on bilinguals rather than multilinguals. Additionally, these studies were conducted in countries with English as the primary language for majority of the population. Not only is there limited evidence around guidelines to choose language(s) for intervention in a bi/multilingual environment, but also there is a paucity of evidence for choosing a bi/multilingual approach for children with ASD in socioculturally and linguistically diverse regions. One cannot underestimate the complexities that arise during the decision-making process about choice of language(s) for intervention in children with ASD growing up in naturally bi/multilingual environments.

In this paper we have first presented a brief overview of existing studies that discuss various factors that could contribute to the decision-making process while selecting language(s) for intervention for toddlers and preschool children with ASD who have bi/multilingual exposure. We have presented these factors under three broad areas. Next, we have presented four case vignettes to highlight (1) how these factors influence the decision-making process, and (2) complexities involved in this decision-making process in a naturally bi/multilingual country like India. We believe that by providing case vignettes, readers may (1) better understand difficulties faced by professionals and families when choosing languages for intervention in a naturally multicultural and multilingual environment, (2) appreciate the change in perspectives with advances in literature over the past few years, and (3) understand the gaps that persist in this broad area of autism and multilingualism, both in clinical and research domains. We also hope that the case vignettes will help readers relate to their own experiences.

Factors Contributing to the Decision-Making Process for Selection of Language(s) for Intervention

In this section, we have grouped findings from literature on factors contributing to the decision-making process for selection of language(s) for intervention under three broad categories: (1) language environment of the child, (2) parent/caregivers' perspectives regarding bi/multilingual exposure, and (3) medium of education and availability of intervention services.

Language Environment of the Child

Language environment for the purpose of this paper is defined as the quantity and quality of language(s) the child is exposed to in various settings, for example, home, intervention center, school, and community. Language environment can constitute both native and nonnative languages (see ►**Fig. 1** for description of terminologies). Research does not indicate significant negative effect of bi/multilingual exposure on language development for children with ASD.[20–22,28,36,37] However, family interview reports indicate that parents have often received professional advice to follow a monolingual approach. Often, families chose the nonnative language (medium of instruction at school/intervention) over their native language. Studies show that the family's nonnative language proficiency may not be as good as their native language[33–35] and their competency in the nonnative language may be limited to functional use only, that is, daily transactional routines and social interactions at workplaces. Hence, this limits the variety of vocabulary and morpho-syntactic models (quality of exposure) their child recieves.[33,38]

For instance, Yu[33] conducted a case study on a bilingual Chinese-English 6-year-old child with ASD residing in an English-speaking country. The family was advised a monolingual approach and chose to speak to the child in the community language (i.e., English). However, not all members of the family were as proficient in English as in Chinese (*sic*), and 95% of all utterances between family members were in Chinese (indirect language stimulation). The study also described how when Chinese was translated to English, the translations were sometimes irrelevant to the context, further reducing the quantity and quality of language stimulation the child received in their home environment. Hence, employing a monolingual approach (nonnative language, i.e., English) in a bi/multilingual environment could have a detrimental effect on both the child's learning and the family–child communication.[28,39]

Parent/Caregivers' Perspectives Regarding Bi/Multilingual Exposure

Parents form an important part of the decision-making process around language environment and choice of language for intervention. Parents of children with ASD have expressed greater concern regarding bilingualism than parents of typically developing children, often worrying that multiple languages may confuse their child and lead to a further delay in language development.[30,33,35,40] Other concerns include lack of intervention services in their native language, their own limited proficiency to communicate in other languages (e.g., community language), and conflicting advice received from professionals.[21,30,35,37,41]

Hampton et al[40] conducted a semi-structured interview on perceptions of parents on bilingualism in children with ASD and typically developing children residing in English-speaking countries. All parents included in the study had high proficiency in English. These parents expressed a need for intervention in the community language (English) to support academic progress and social inclusion. Whereas, in another study, parents with lower language proficiency in nonnative language, reported increased stress and/or anxiety because of their inability to provide adequate language stimulation.[34] Use of monolingual (nonnative/community language) approach was reported to have adverse effects such as isolation of the child at home and among extended family who predominantly conversed with each other in their native language. This negatively impacted family dynamics by inducing feelings of frustration on their child being unable to converse with elders in the family, combined with the guilt of foregoing their heritage (native) language.[33]

Previous literature has in fact supported a bilingual environment for better social participation in children with ASD.[24,33] Researchers have suggested that providing a bilingual environment (native and nonnative languages) for children with ASD would enhance family interaction and maintain familial culture and heritage. This would allow them to tackle communicative demands in the community while retaining use of their native language with the family.[33] Thus, it is important to address parents' concern regarding bi/multilingual exposure, empower them with correct information, and consider their preferences wherever feasible while selecting language(s) for intervention.

Medium of Education and Availability of Intervention Services

Studies show that parents of children with ASD indicated preference to use English over their native language for formal education. They believed that formal education in English would lead to better academic skills, job opportunities, and a more successful life.[33–35] Additionally, lack of speech-language therapy and special education services in their native language has increased parents' preference for English over their native language.[32,35,41] Lim et al[31] reported less than 10% of children with ASD and related developmental disorders received formal education in their native language. However, research has shown similar literacy rates in children with ASD irrespective of the language of instruction.[31,42] Medina and Salamon[42] suggested that language exposure at home prior to enrollment in school lays the foundation to acquire academic skills, regardless of the language used at home. Hence, the richness of the language environment is crucial to language development as opposed to which language(s) the child is exposed to.[20] Another important aspect to consider is the influence of cultural differences on intervention services. Culturally incongruent

intervention plans may be ineffective or fail to address specific needs of the family. A bilingual approach may help the interventionist and parent communicate better, thereby providing the best possible care for the child.[43]

The above-mentioned factors are the three most commonly recurring factors reported in literature that influence the decision-making process to select languages(s) for intervention for young children with ASD. However, there are several other factors that may contribute to this language selection process that are not yet explored sufficiently—for instance, differences in socioeconomic status, nature of occupation of primary caregivers, family dynamics, policies, and/or special services available, to state a few. The factors influencing language-decision are often highly dependent on sociocultural contexts. There is very limited literature on children with ASD growing up in naturally bi/multilingual countries like India. Hence, it is not surprising that professionals often face a dilemma while selecting language(s) for intervention for children with ASD growing up in natural bi/multilingual environments. A better understanding of language selection across various scenarios in a naturally bi/multilingual context is important to make informed decisions.

Case Reports

In this section, we have presented four case vignettes of children with ASD from mono/bi/multilingual backgrounds. Decisions regarding choice of language(s) for intervention were made prior to the conception of this paper. We have thereafter critically evaluated these decisions based on the three factors reviewed in the preceding sections, that is, (1) language environment of the child, (2) parent/caregivers' perspectives regarding bi/multilingual exposure, and (3) medium of education and availability of intervention services. Through this section, we aim to demonstrate the complexity and challenges involved in the decision-making process of choosing language(s) for intervention in mono/bi/multilingual children with ASD.

Four children aged 29 to 48 months (3 males) were seen between 2013 and 2017, at a tertiary care hospital (National Institute of Mental Health and Neurosciences [NIMAHNS]). Behavioral and diagnostic assessments for all children were performed by a multidisciplinary team that comprised of a child and adolescent psychiatrist, clinical psychologist, occupational therapist, and speech-language pathologist. A diagnosis of ASD was made based on clinical best estimate using DSM-5—*Diagnostic and Statistical Manual-Fifth Edition*. Autism severity was assessed using the childhood autism rating scale (CARS)[44] and/or Indian scale for assessment of autism (ISAA)[45] (►**Table 1**). A team of speech-language pathologists (two undergraduate interns in their final year of a 4-year degree in speech-language pathology and audiology and one speech-language pathologist with 10 years of experience) conducted a detailed speech-language assessment based on parent report and direct observation through play. The team of speech-language pathologists that conducted assessments was multilingual. At least one speech-language pathologist was fluent in each of the languages the families spoke. Although children were seen at one time point only (i.e., they were not seen for a follow-up), speech-language assessments were conducted over 2-hour sessions across 3 to 4 consecutive days. All four children were evaluated on the Communication DEALL Developmental Checklist (CDDC),[46] a criterion referenced parent report measure. The checklist is administered on children from birth to 6 years and assesses the child's development across eight domains (gross motor, fine motor, activities of daily living, receptive and expressive language, cognition, social, and emotional). Following a detailed assessment, the speech-language pathologist team designed a home-based intervention program and helped make the decision of language(s) to be used for intervention. This decision was based on input from parents and other professionals whenever applicable. Appropriate referrals to intervention centers at their hometowns were made. Since these children were neither a part of a formal study that looked at mono/bi/multilingual development nor a part of an intervention study, no follow-up data was available.

All four children were predominantly nonverbal, demonstrating challenges in early social communication skills (e.g., joint attention, eye contact, orientation to name, imitation, gesture use, sharing of interests, emotions, or affect). They had a primary diagnosis of mild to moderate ASD with varying comorbidities. None of the children had siblings. Each case vignette includes (1) descriptive details highlighting the mono/bi/multilingual environment, (2) the decision taken by the team of speech-language pathologists at the time of assessment, and (3) a discussion about decisions previously made (i.e., at the time of assessment) regarding choice of language(s) for intervention based on the three factors reviewed in the above section.

Child 1

SS, 29-month-old male child diagnosed with ASD, lived with his parents and paternal grandparents in a semi-urban region of Karnataka, a state in southern India. The child was diagnosed with mild to moderate ASD based on inputs from a multidisciplinary team. The family's native language and the language spoken in the community they lived in was Kannada. The child was enrolled in a Kannada medium playschool. The child's receptive and expressive language measured on the CDDC was between 6 and 12 months (see ►**Fig. 2**). He used unconventional gestures to convey his needs (pulled parents near objects of his interest and used parents' hand to point to something). Parents were in a transferable state government job and regularly relocated to several rural regions within the state where the community language remained the same (i.e., Kannada). Parents were most comfortable using Kannada and were not proficient in English (i.e., their English use was limited to exchanges like "hello" or "thank you" or included borrowed words like "market," "ticket," "passbook"). However, the parents wanted a bilingual approach (Kannada and English) with intervention predominantly in English. They wanted to enroll their child in an English medium school with the hope of giving him better opportunities in the future.

Table 1 Summary of case vignettes described

		Child 1, SS	Child 2, AA	Child 3, SD	Child 4, PG
Age/Gender		29 months/Male	40 months/Male	48 months/Male	38 months/Female
Socioeconomic status		Lower-middle	Upper-middle	Upper-middle	Upper-middle
Languages used during assessment		Kannada	Hindi, English	Hindi, English, Tamil	Bengali, Hindi, English, Kannada, Malayalam
Native language(s)		Kannada	Hindi	Hindi, Bhojpuri	Malayalam, Bengali
Nonnative language(s) exposed to		–	English	Tamil, English	Hindi, English, Kannada
Language(s) parents use to communicate with each other		Kannada	Hindi	Hindi, English	English, Hindi (English > Hindi)
Language exposure at home	Parents	Kannada	Hindi, English	Hindi, English	English, Hindi
	Grandparents	Kannada	Hindi	NA	Bengali, Hindi (Bengali > Hindi)
	Nanny	NA	Hindi	Tamil	Kannada, Hindi (Kannada > Hindi)
Estimated daily interaction at home (quantitative[a])	Parents (predominantly mother)	60%	50%	30%	30%
	Grandparents	40%	35%	NA	15%
	Nanny	NA	15%	70%	50%
Total number of languages exposed to		1	2	3	5
Medium of instruction at school		Kannada	English	English, Tamil	English
Medium of instruction at intervention services (SLT, ABA, Special education)		Not enrolled	English	Not enrolled	Not enrolled
Perspectives on mono/bi/multi-language approach	Parents	Bilingual (Kannada, English)	Bilingual (Hindi, English)	Bilingual (Hindi, English) or monolingual (English)	Multilingual (English, Kannada, Bengali)
	Other professionals[b]	Monolingual (Kannada)	Monolingual (English)	Monolingual (Hindi)	Monolingual (Hindi)
SLP's decision at time of assessment		Monolingual (Kannada)	Bilingual (Hindi, English)	Monolingual (Hindi)	Bilingual (Hindi, English)
Alternate recommendation by authors (if any)		–	–	Multilingual (Hindi, Tamil, English)	Multilingual (English, Kannada, Bengali)

Abbreviations: ABA, applied behavioral analysis; ASD, autism spectrum disorder; ADHD, attention deficit hyperactivity disorder; ID, intellectual disability; SLP's, speech-language pathologist's; SLT, speech and language therapy; NA, not applicable.
[a]Quantity indicated as estimated average daily percent (%) based on parental report (no standardized measures used).
[b]Includes child and adolescent psychiatrists, psychologists, and pediatricians.

In this case, the child's family was predominantly monolingual (Kannada), residing in a community where Kannada was the language of communication, and the child was enrolled in a Kannada medium playschool. Parents expressed a preference toward English for intervention. However, all professionals, including the speech-language pathologist, recommended a monolingual approach (Kannada) for intervention. Reasons for this recommendation included: (1) no one in the family was proficient in English, and, (2) parents were going to be transferred to rural regions where (a) speaking in English with the community was most unlikely, and (b) medium of education was more readily available in the community language (Kannada).

Decision at time of assessment: The family was advised to use a monolingual approach in the native language (Kannada) for intervention.

Discussion: Based on the first factor reviewed, that is, language environment of the child, choosing a monolingual approach (native language Kannada) for intervention seemed appropriate as the child was growing up in a naturally monolingual environment. The family was going to be transferred to rural regions where community language would remain Kannada. Here, in contrast to the urban regions of India (1) there is little to no use of English in natural conversational settings, and (2) English is often not spoken in schools, especially in the lower grades, even though the school may be called "English medium." Additionally, since the parents and grandparents were not proficient in English, SS would have received little to no natural learning opportunities in the nonnative language (English). This would have compromised the quantity and quality of language exposure provided to the child, similar to the findings reported by Yu.[35] Based on the third factor, intervention services were more readily available in the child's native language (Kannada). Moreover, language intervention studies have reported positive effects of intervention in the

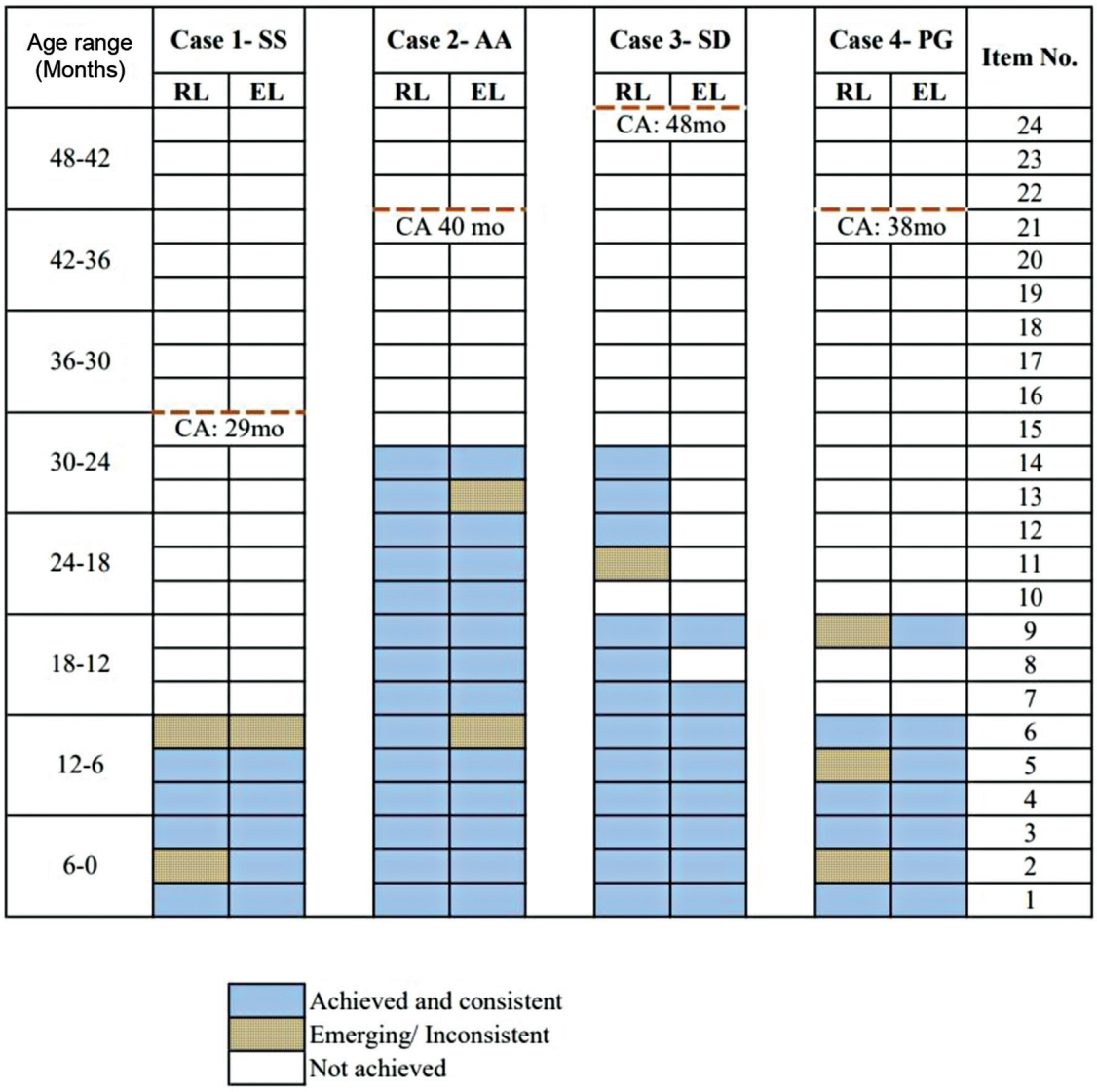

Fig. 2 Receptive and expressive language scores on Communication DEALL Developmental Checklist. CA, chronological age; EL, expressive language; RL, receptive language.

native language such as increased joint attention and play behavior,[47–49] higher response accuracy, and reduced occurrence of challenging behaviors.[50]

Lastly, considering the second factor of parents' perspective, the decision taken by the speech-language pathologist for choice of language intervention was not in favor of the parents' choice (English as the language of intervention). This is understandable given the challenges involved in providing adequate quantity and quality of exposure in English, that is, in terms of models the child receives to learn new vocabulary. Further, introducing English as the language of intervention would not have contributed to increasing the child's opportunities for communication/language learning or integrating the child into the community at this point of time. It is pertinent to note that the decision for bilingualism supported in previous literature has mostly been for immigrant families where the community language has not been the same as the native language. In contrast, the community language in this scenario is the same as the native language.

However, the decision about choice of language for intervention, that is, Kannada, does not indicate that the child's exposure to English from the environment must be restricted in any way. Neither does this suggest that he cannot be enrolled into an English medium school. It is important to recognize that adopting a monolingual approach for intervention does not imply that a child with ASD cannot learn more than one language. A bilingual approach for intervention (Kannada and English) can always be introduced when the child has adequate natural language learning opportunities in English and when there is availability of services in both languages. Taken together, a monolingual approach for

intervention seemed to be a suitable option at the time of assessment.

Child 2

AA, 40-month-old male child, was diagnosed with mild to moderate ASD (CARS: 32.5) and was considered at risk for attention deficit hyperactivity disorder. AA lived with his parents and paternal grandparents in a metropolitan city in North India. Hindi served as both native and community language. The child was also exposed to English at playschool. The child's receptive language was 24 to 30 months and expressive language was 18 to 24 months as measured on CDDC (►**Fig. 2**). Based on parental report, language comprehension was similar in Hindi and English. His expressive vocabulary largely consisted of single English words (e.g., common nouns). Parents had decided to enroll their child into an English medium school. Speech-language intervention and behavioral therapy had been initiated in English. Parents stated that they were temporarily moving to the USA (6 months) for work and believed intervention in English would enable their child better access to intervention services and opportunities there. At the time of assessment, the child spent most of his time with his grandparents and nanny who spoke their native language (Hindi). When seeking advice from the speech-language pathologist, parents voiced their concern regarding language selection for intervention as other professionals recommended a monolingual approach in English.

The speech-language pathologist recommended retaining use of native language, Hindi, for intervention since the family predominantly spoke Hindi at home. Nonnative language (English) was also encouraged since (1) both parents were fluent in English, (2) the child was enrolled in an English medium school where English was the predominant language, (3) intervention services were available in Hindi and English, and (4) the family was due to relocate to the USA for 6 months (community language and availability of services—English). Hence, a bilingual approach (Hindi–English) for language intervention was adopted. Here, the challenge was to convince other professionals that a bilingual approach was the better choice.

Decision at time of assessment: Speech-language pathologist advised the family to use a bilingual approach for intervention (Hindi and English).

Discussion: Based on the first factor, that is, language environment, retaining the native language during intervention sessions was appropriate since it would enable transfer of skills introduced in the intervention sessions to the home setting. This would also promote a rich language environment at home.[34,35] Continuing intervention in English alongside Hindi was also appropriate since (1) parents were proficient in English, (2) child was already enrolled in an English medium school, and (3) child was already receiving speech-language intervention in English. As stated previously, literature indicates that there seems to be no significant negative effect of bi/multilingual exposure on language development for children with ASD.[20–22,28,36,37] The second (parent/caregivers' perspectives regarding bi/multilingual exposure) and third (availability of services in both native and nonnative languages) factors were also taken into consideration, where adequate exposure to both Hindi and English was possible. Additionally, the family was relocating to a country where English was the community language. Although parents of both child SS (case 1) and this child (case 2—AA) were keen on English as a language for intervention, including English for this child was an easier decision to make. Availability of services and English proficiency of family members aided this decision-making process. Hence, we support the decision that was made by the speech-language pathologists' team in choosing a bilingual approach for intervention.

Child 3

SD, 48-month-old male child, was diagnosed with mild to moderate ASD (CARS: 32.5; ISAA: 94) and mild intellectual disability (ID). This child lived with his parents and they were originally from North India. Hindi and Bhojpuri were their native languages. They spoke Hindi more than Bhojpuri. Both parents were central government employees with transferrable jobs. The father's work brought the family to a small town in southern India where the community language was Tamil. Parents occasionally used English alongside the native language (Hindi) when communicating with each other and the child. The child was looked after by a nanny who spoke the community language (Tamil). The child was also exposed to Tamil and English at playschool (Tamil > English). The parents, on the other hand, neither understood nor spoke Tamil. They reported difficulty in communicating with child's Tamil-speaking nanny. The parents wished for intervention services to be provided in Hindi and English: Hindi, as this was the language the family was most comfortable in and they wanted their child to speak their native language; and English, as they felt this would help their child in academics.

The child's receptive language on CDDC was 24 to 30 months and expressive language was 12 to 18 months (►**Fig. 2**). Based on observation during assessment, free play session, and parental report, the child seemed to have similar comprehension in Hindi and Tamil. Other professionals suggested parents use a monolingual approach (Hindi). The parents were concerned that if they chose a monolingual approach (Hindi), the child might miss out on education (English).

The speech-language pathologist initially advised the family to opt for a monolingual approach with native language (Hindi) as (1) Hindi was the predominant language spoken at home, (2) the child had very little exposure to English, (3) parents could neither understand nor speak Tamil, and (4) the child's community language was likely to change every 3 years (sometimes shorter), depending on the parents' transfers. However, they expressed difficulty in finding intervention services for their child in Hindi. Since parents were keen to commence intervention immediately, the speech-language pathologist suggested they opt for parent-mediated intervention. Parents were full-time employees. They expressed inability to find time to engage in an intensive parent-mediated intervention. The mother also voiced her difficulties in coping with moving to the new

city and expressed need for more support from family and/or friends. Next, the treating team asked if the parents were willing to explore provisions such as childcare leave and preferential transfer (available for central government employees). Childcare leave would give the mother sometime for herself, which she felt she needed. It would also allow the parents more time to commence parent-mediated intervention. Preferential transfer to the northern regions of India would allow the family to readily find intervention services in Hindi and receive the community support they wished for. The parents readily agreed to explore this option.

Finally, upon discussion with the family, the mother decided to opt for childcare leave and temporarily move back to their hometown (community and native language—Hindi). The father indicated that he would enquire regarding preferential transfer and soon join the family. Considering the family-centered culture of India, this arrangement would (1) provide a language rich environment for the child, (2) allow immediate commencement of intervention for the child in a language the family was comfortable with, that is, Hindi, and (3) more importantly provide a supportive environment for the family, especially the mother who felt the need for additional support. The treating team suggested that the parents could request for a transfer closer to their hometown and subsequently opt for transfers within north of India (community language Hindi). This arrangement would ensure that the family remained together as a unit and received continued support from the community—an aspect that they missed in their area of residence. Taking all these factors into account, the speech-language pathologist suggested a monolingual approach (Hindi) for intervention. However, the parents insisted on the child continuing to learn English since they believed learning English was the way forward to access good-quality education. As the parents were relatively comfortable conversing in English and some intervention services were available in English, a bilingual approach (Hindi and English) was agreed upon.

Decision at time of assessment: A bilingual approach (Hindi and English) was chosen for intervention.

Discussion: Considering the second factor, that is, parents' perspective, SD's parents indicated ease and comfort in communicating in the native language (Hindi). They, like other families, also believed that exposing the child to English would lead to better academic and employment opportunities in the future. Hence, based on parent/caregivers' perspectives, English and Hindi seemed to be a good choice for intervention for this child. However, if we consider the first and third factors, that is, language environment that the child was exposed to, and availability of services at the time of assessment, a multilingual approach with Hindi, English, and Tamil may have been a better choice.

We recognize that the speech-language pathologists did not recommend Tamil as the language for intervention as this community language would change in a few months. However, it is important to ensure that the family does not restrict the child's exposure to the community language in their place of residence. In addition, we recognize that the treating team provided information regarding alternate options available such as parent-mediated intervention, childcare leave, and requesting for a special transfer to ensure what was best for both the child and the family. This is a very child/family-specific recommendation and worked for this family since they expressed that they felt unsupported in their current place of residence. However, though it is the responsibility of a professional to provide a range of alternate options, including informing families about different provisions and/or benefits available to them, one must be careful not to imply that having a child with ASD requires the family to make drastic changes in their lives (e.g., taking a break from work, relocating). If the message is unclear, then it can be stigmatizing or even harmful. Professionals must also be careful not to make recommendations, but simply provide relevant information and leave it up to the family to decide what would work best for them.

Further, it is important to note that not all families have the provision for preferential transfer. If this family did not prefer/have an opportunity to move back to their hometown, and all other factors remained, a multilingual approach may have been the most practical option (Hindi, English, and Tamil). The parents could comfortably provide natural language learning opportunities in Hindi and English. The nanny could continue to use the language she was most comfortable with, that is, Tamil. Intervention could be provided in English with education in Tamil and English. This would also have facilitated communication with the child's peers. Such a multilingual approach would have promoted an overall balanced quantity and quality of exposure in all three languages.

Child 4

PG, a 38-month-old female child diagnosed with mild to moderate ASD (CARS: 32; ISAA: 97) and mild ID, lived with her parents and paternal grandparents in South India where Kannada was the community language. PG's mother was from Kerala, another state in South India. Her native language was Malayalam. She was also fluent in English. She had studied Hindi in school as a second language. She occasionally communicated in Hindi with her husband and in some social contexts. PG's father was from West Bengal, a state in eastern India. Bengali was his native language. He was also fluent in Hindi and English. Both parents had developed conversational proficiency in the community language, Kannada. PG's paternal grandparents predominantly spoke Bengali with little proficiency in Hindi and almost little to no proficiency in Kannada. The child spent half her day with a Kannada-speaking nanny (very little proficiency in Hindi and did not comprehend or speak Bengali). She spent the rest of her time with her mother and grandparents. Grandparents were dependent on the family as they were not in good health and required financial assistance. They did not share a cordial relationship with PG's mother. They found it difficult to adjust to each other's lifestyles. The grandparents were also unable to communicate with PG's nanny (Kannada speaking) who took care of their needs. The nanny had become an integral part of the household as she was with the family since PG's birth. However, with the complex

family situation, the nanny had indicated that she wished to leave her job. The child was enrolled in an English medium playschool. Thus, the child was exposed to five different languages at home and school, that is, Kannada > English > Hindi > Bengali > Malayalam (►**Fig. 3**). The family dynamics did not seem to provide a supportive language learning environment at home for the child.

Child's receptive and expressive language on the CDDC was 6 to 12 months (►**Fig. 2**). It was hard to ascertain which language the child comprehended the most and other professionals had advised the family to use a monolingual approach (Hindi). However, parents were mainly concerned about the child's education and were keen on receiving intervention in English. They also expressed that the child would continue to be exposed to Kannada through the nanny as long as they could retain her, and Bengali through the grandparents. Considering the complex family dynamics, they were referred to the family counseling unit for further support in making the home environment a comfortable place for all. The family was not in a position to take the child for regular center-based intervention services. Home-based, parent-mediated intervention was the only option for the child and family. Hence, the speech-language pathologist spent many sessions trying to understand who the most suitable family member would be to serve as the primary caregiver/parent therapist. The family decided that the mother would take on this role.

Based on multiple language exposure and family dynamics, the team suggested that (1) the family restrict themselves to a bilingual approach (Hindi and English) at home, (2) for the parent-mediated intervention, the family could employ another nanny from the father's hometown (Hindi and Bengali speaking) who could assist the grandparents when communicating with the child in Hindi and improve the family dynamics, and (3) the child could continue playschool in English.

Decision at time of assessment: Although other professionals suggested a monolingual approach, the speech-language pathologist team finally recommended a bilingual approach (Hindi and English).

Discussion: It is interesting to note that although all professionals, including the speech-language pathologist, recommended Hindi, none of the child's primary caregivers had native-like proficiency in Hindi. Based on availability of services, if the parents had sought direct intervention choosing common languages (Hindi and English) spoken between the parent and the therapist (though less proficient than their respective native languages), it may have been a viable

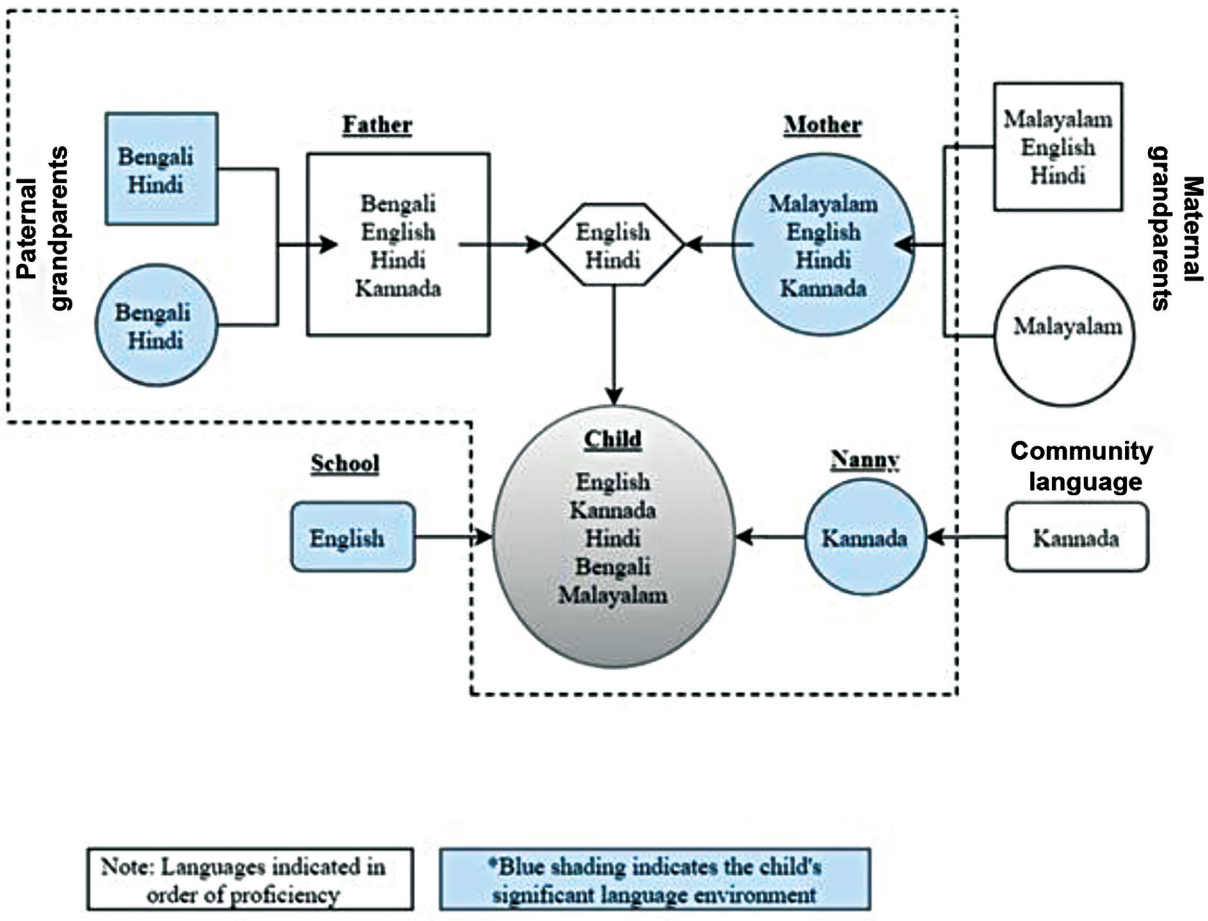

Fig. 3 Flowchart depicting language environment of child 4. Dotted box (—) represents members living with the child.

option. However, as this family was leaning toward a parent-mediated intervention approach, this may not have been the best decision. Based on the first factor reviewed, language environment, choosing languages with limited quality (Hindi) or quantity (Malayalam and Hindi) of exposure could have restricted the family's communication and variety of linguistic models the child received.[40,51] Although there is limited literature for this complex scenario, an alternate decision could have been to explore a multilingual approach with English, Kannada, and Bengali as languages of choice: English, as both parents were fluent in English and language of formal education was English; Kannada, since nannies in the region spoke the community language (Kannada); and Bengali, as the grandparents, who spent a considerable amount of time with the child, were proficient only in this language. In such complex language environments, devising a method to measure the percentage exposure of each language to the child would not only help select languages for intervention, but also help facilitate balanced language stimulation across languages. As reflected in this case, the second factor, parent/caregivers' perspectives for choice of language(s) for intervention, was difficult to honor since each family member wanted a different combination of languages. Clearly, making this decision was not straightforward for the team of speech-language pathologists at the time of assessment. It continues to be hard to critically evaluate their decision since evidence on multilingual approach in intervention is limited.

Summary

Children with ASD, who grow up in culturally and linguistically diverse countries like India, are exposed to different languages to varying extents. Previous research on bi/multilingualism and ASD has indicated that both monolingual and bilingual children with ASD follow a similar pattern of language acquisition.[21,22,24,36,51] Upon reviewing literature, we observed this to be true irrespective of the varying linguistic characteristics (phonotactic rules, sentence structure, and so on) across different languages studied (e.g., English–Spanish,[26] English–Mandarin,[24,33] English–Hindi,[23] English–Urdu[52]). In spite of recent evidence, reports have indicated that professionals still advise a monolingual approach for intervention for children with ASD.[28–35] We noticed a similar trend in our clinical practice too, in India. Most professionals (family physicians, pediatricians, teachers, psychologists, and even speech-language pathologists) seemed to continue to recommend a monolingual approach, until the child starts to speak in sentences. This is advised even for families that naturally speak two or more languages. Here, convincing other professionals to adopt a bi/multilingual approach can be quite challenging. This could be due to their lack of awareness of existing literature or their adherence to old practice (advice being handed down by clinicians over many years). More often than not, other professionals make these decisions without consulting with a speech-language pathologist.

In this article, we first reviewed recent studies that address the issue of language selection for intervention in toddlers and preschoolers with ASD, growing up in bi/multilingual environments. Three commonly discussed factors influencing the decision-making process for selection of language(s) were (1) language environment of the child, (2) parent/caregivers' perspectives regarding bi/multilingual exposure, and (3) medium of education and availability of intervention services. Next, we presented four case vignettes to highlight the challenges faced by speech-language pathologists in making a decision around choosing mono/bi/multilingual approaches in a naturally bi/multilingual country like India. Lastly, we critically evaluated the decisions made by the speech-language pathologists for each child, based on the three commonly discussed factors that influenced this decision in previous studies.

As mentioned before, majority of the existing literature has been conducted on immigrant families in predominantly English-speaking countries with limited studies in naturally bi/multilingual countries like India. Lack of studies from these countries is likely due to methodological constraints such as participant heterogeneity and nonavailability of outcome measures or assessment tools that comprehensively assess language abilities in all languages. Furthermore, most of these studies focus on bilingualism rather than multilingualism. Hence, there is an urgent need for in-depth research exploring effects of multilingual approach for intervention on language development in young children with ASD. For instance, would the impact of introducing five languages be different from introducing three? Would the child's developmental age, severity of ASD, or presence of comorbidities impact multilingual language development? Would parental education and socioeconomic status play a role? Development of standardized tools across languages, in-depth parental interviews, and systematic research investigating the influence of bi/multilingual approach across participant characteristics are areas that need to be studied in detail. Stronger study designs with a larger sample and adequate follow-up data can help gain better insight on the language decision-making process and help formulate appropriate guidelines for the same.

This article is not without limitations. Data on the children reported in the case vignettes were not part of a formal study. Instead, they were retrieved from case records. We cannot rule out potential recall bias as not all information was complete in case records and the speech-language pathologist team recollected missing information about the children wherever possible. Formal tests for language assessments were not administered due to limited availability of standardized tests in native languages. The scenarios described were mostly from the upper-middle socioeconomic strata (SES), whereas challenges could be different for children belonging to other SES with varied parental education and occupation, and access to and affordability of intervention services. Lastly, since the information discussed in this paper was not collected as part of a formal study, we do not have follow-up data to critically evaluate the child's language development across languages. Ideas that emerged from each vignette cannot be taken as evidence for a bi/multilingual approach due to the inherent limitations that

case studies as a design pose. Instead, findings from the case vignettes must be used to inform future study designs.

In conclusion, choosing language(s) for intervention in a multilingual context is especially complex. Presently there are no guidelines or standard procedures that can be adopted. Several factors must be considered while making these decisions as it varies from child to child. The key is to involve families and other professionals in the decision-making process. Parents' concerns regarding exposure to multiple languages must be addressed through public education materials, screening camps, and/or community workshops. It is important to collaborate with and sensitize fellow professionals like pediatricians, child psychiatrists, clinical psychologists, occupational/physical therapists, and social workers to the existing literature. This can be done through seminars, workshops, and research presented at conferences/symposia and by encouraging them to make appropriate referrals to speech-language pathologists for guidance regarding language decisions. There is an urgent need to create a strong evidence base and develop an assessment battery that can capture the effect of bi/multilingualism on language development. Such research can then help formulate guidelines and inform policy development in this very crucial area that has become the need of the hour.

Conflict of Interest
None declared.

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