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Review of Research on Bilingualism and ASD: Recommendations for Evidence-Based Practice

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ABSTRACT

In the past, parents of children with language disorders such as autism were advised not to expose them to more than one language, even if the parents were bilingual or multilingual. There has been an increase in research about bilingual language development in autistic children that is now available to guide clinical practice. Research indicates bilingualism is not harmful for autistic children's language development and, in fact, may offer some benefits to the child's social life, cognitive skills, and set-shifting abilities (Digard et al., 2020; Gonzalez-Barrero & Nadig, 2019). However, many speech-language pathologists continue to suggest that autistic children should only use one language. The factors that influence the decisions on development of bilingualism in autistic children range from parental concerns about being a language model to clinicians feeling uncomfortable doing bilingual treatment (Kay-Raining Bird et al., 2012). This thesis provides a review of the literature on bilingualism and autism spectrum disorder. The review examines the factors to consider when recommending bilingualism, how to facilitate bilingual language development in autistic children, and recommendations for evidence-based practice when providing speech-language therapy services to autistic children who are being raised in a bilingual or multilingual environment.

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Chapter 1

Clinician and Parent Perspectives on Autism and Bilingualism

To understand how speech-language pathologists make recommendations for autistic child in bilingual families, we must examine how clinicians view bilingualism for this population. Although there has been an increase in research on bilingualism in autistic individuals, speech-language pathologists generally do not advocate for the development of bilingualism in this population (Kay-Raining Bird et al., 2012). This may be due to a variety of factors, such as the belief that bilingualism is harmful to language development, the clinician's comfort level in providing bilingual therapy, or lack of knowledge on bilingualism in this population. Although more research is still needed on the interaction between bilingualism and characteristics of autism (Drysdale et al., 2015), currently available research provides guidance for clinical practice with autistic children from bilingual families.

Speech-language pathologists may not feel confident in their overall ability to work with bilingual clients, and this may influence the clinician's decision to recommend monolingualism (D'Souza et al., 2012). Therefore, the decision to recommend monolingualism in autistic children may be made based on the comfort level of the speech-language pathologist instead of on the client's best interests. Moreover, the clinician may have limited experience working with autistic individuals, making them even more uncomfortable in working with an autistic individual who may be bilingual. Clinicians may be unprepared to recommend a course of intervention for autistic children in bilingual families, which may result in clinicians recommending monolingualism for these children (Drysdale et al., 2015). Clinicians may also be inexperienced in writing communication goals for children who are bilingual. However, the comfort level of the speech-language pathologist alone cannot determine whether a autistic child

should be monolingual. The clinician should evaluate each case individually before advising parents to speak only one language to their autistic child.

Speech-language pathologists need to make recommendations for monolingualism or bilingualism in autistic children based on research, parental preferences, and other environmental factors, not on their comfort level or preference for working in a single language. The clinician should evaluate their own views and put aside their own personal biases and reservations toward bilingual speech therapy for autistic individuals. Speech-language pathologists should anticipate and consider how parents will respond to recommendations for monolingualism for the child. Interestingly, parents who were advised not to speak multiple languages to their child sometimes went against the clinician's recommendations due to the resources available for intervention, their ability to be good language models, and the child's response to English (Kay-Raining Bird et al., 2012). Therefore, the perspective of the parents is an important factor when determining whether an autistic child will be raised in a bilingual environment.

Although the views and opinions of the speech-language pathologist are crucial to developing therapy goals, parent perspectives of autism and bilingualism need to be examined. If parents do not want their child to be monolingual, the parents may be uncooperative during speech and language therapy. Parents may have their own expectations for speech and language that include development of more than one language. They may want the speech-language pathologist to be sensitive to those goals and incorporate them in the child's speech and language intervention plan.

Alternately, parents may have their own concerns about helping their child to develop more than one language. Parents may express worries that they are not proper English language models for their children. In a study of 16 family members in England and Wales, researchers

found that parents considered their level of English proficiency to determine if they would be good language models for their children (Howard et al., 2021). The level of English proficiency of the parents must be taken into consideration. Both parents may be proficient in English, one parent may be more proficient in English than the other, or both parents may not speak English well. However, clinicians may recommend parents only speak English to their child, even if the parents' first language is not English. Furthermore, parents feel more comfortable speaking their native language to their children. Yu (2013) conducted an interview study examining parent perspectives of bilingualism in Chinese immigrant families with autistic children. Many parents explained they spoke Chinese to their children because it felt unnatural to not do so (Yu, 2013).

Furthermore, parents were also concerned about being language models for their other children. If the parents are not speaking their native language, the parents may not be proper language models for their non-autistic children. If the parents decided to speak one language in the home, their non-autistic children are not receiving bilingual language input. Thus, pursuing the monolingual route may affect bilingual language development of non-autistic children in the family (Howard et al., 2021). In the same Yu (2013) study, parents decided to speak Chinese because they could be better language models for their children (Yu, 2013).

Another factor that may influence the decision of whether to raise a child to be bilingual is the availability of bilingual services in the area. Parents also research the bilingual services available in their area and factor this into their decision to raise their child bilingually or monolingually. In an interview study of Chinese immigrants to the United States and their autistic children, parents explained they could not get speech and language services for their child in Chinese and clinicians advised them to use the monolingual route (Yu, 2013). If parents are unable to get access to bilingual speech services, the parents may feel less inclined to pursue

bilingualism for their autistic child. Parents also may have difficulty getting feedback from their child's teachers and therapists if the child was bilingual (Yu, 2013). For instance, if the parents speak Chinese and teacher or clinician speaks English, there may be communication breakdowns between the family and the professionals the child is with. Hence, the parents may not understand information about their child's progress in speech and language therapy. Without feedback from teachers and clinicians, the child may struggle to make progress in their speech and language goals.

Parents have also been reported to contemplate the environmental contexts the child needed to communicate in when deciding whether the child should be bilingual. Parent decisions considered the child's communication partners, such as family members or teachers, and the environments in which the child participated (Howard et al., 2021). Some family members may not speak English, which could limit the amount of communication partners the child has if they are monolingual for English. The broader context of language dominance throughout the country of residence was also examined by parents. In the same study by Yu (2013), many Chinese immigrants to the United States chose to teach their children English because it is the dominant language in that country (Yu, 2013), thereby, allowing the child to interact with the maximum number of people. Furthermore, the autistic child will need to be familiar with the dominant language in their country to achieve some degree of independence.

Parents also may decide to help the child to develop one language when young, but they may plan for the development of a second language at a later time. In the study by Yu (2013), several parents felt it was important for the child to learn English, however, they did not relinquish the idea that their child could eventually become bilingual. Many parents felt if the child successfully learned English, they could learn Chinese later (Yu, 2013).

Another factor that influences parents' decision about bilingualism for their autistic child is the child's current language skills. Parents were reported to account for their child's language level in their decision to maintain monolingualism or pursue bilingualism (Howard et al., 2021). Some parents may think that if the child does not have good language skills in one language, it may be difficult for the child to learn a second language.

Finally, parents' decisions about monolingualism or bilingualism were influenced by the autistic child's reaction to the second language. For some autistic children, the introduction of a new language was overstimulating and caused the autistic child to display distress (Howard et al., 2021). If the autistic child is not overwhelmed by the introduction of a new language, the parents may decide their child can learn another language. The parents may think the child is capable of learning at least parts of another language, even if the child is not fluent in a singular language. However, parents may have different opinions on their child's language acquisition skills than the speech-language pathologist.

Summary

The conflicting views parents and speech-language pathologists have concerning bilingualism and autism warrant further examination. Clinicians may not be comfortable working with clients who speak more than one language. Hence, clinicians may make recommendations based on their comfort level rather than what is best for the child. Even if clinicians recommend bilingualism for the child, parents may not have access to bilingual services. However, many parents have their own communication goals and expectations for their child that may or may not include bilingualism. Therefore, the clinician and parents should work jointly to create appropriate communication goals for the child.

A primary concern for parents is whether they will be good language models for their child. If the parents are not confident in their ability to be good language models, this influences their decision to speak English or more than one language to their child. However, clinicians may recommend parents only speak English to their child, even if the parents' first language is not English. Furthermore, parents are also influenced by the communication partners their child has. Family members and communication partners in other contexts may not speak English, which limits who the child can communicate with. Conversely, many clinicians and parents may think monolingualism in English will allow the child to communicate with more people because English is the majority language in the United States.

Both clinicians and parents want the child to develop language skills. Parents and clinicians should consider the child's current language proficiency and overall learning ability before deciding if the child should be bilingual. However, clinicians and parents may have differing opinions on the child's speech and language skills, which can cause disagreement in how to proceed with speech and language therapy. Even if clinicians and parents have contrasting linguistic goals for the child, clinicians and parents both want the child to be able to communicate independently. Although parents and clinicians have varying perspectives on bilingualism in autistic children, decisions on intervention goals cannot be made without examining current research on the effects of bilingualism on language development.

Chapter 2

Research on Autism and Bilingualism

Speech-language pathologists develop interventions for their clients based in scientific research. Therefore, an analysis of the research available on autism and bilingualism will provide the information that is needed for clinical decision-making.

Research comparing monolingual and bilingual autistic children has found that bilingualism does not negatively affect vocabulary size or development of lexical skills. A study by Ohashi et al. (2012) analyzed early language development in autistic children exposed to one language and autistic children exposed to two languages. No differences were found between monolingual and bilingual autistic children in terms of severity of autism-related communication impairment, functional language, receptive language, and expressive language (Ohashi et al., 2012). In a study by Petersen et al. (2012), researchers compared the lexical skills of monolingual and bilingual autistic children. They found there were no lexical differences between autistic children who were monolingual and autistic children who were bilingual (Petersen et al. 2012). In the same study, researchers also found both monolingual and bilingual children had about the same vocabulary when the vocabularies of each of the bilingual children's languages were combined (Petersen et al., 2012). Thus, bilingualism itself does not appear to be detrimental to the language development of autistic children.

However, the Ohashi et al. (2012) study had some weaknesses that limit the conclusions that can be drawn from these studies. The researchers did not control the languages in which the children were bilingual (Ohashi et al., 2012). The study had children who were exposed to or spoke English or French, but there were a variety of second languages, and the investigators only assessed the children's language development for general language milestones. For instance, the

researchers asked questions such as, “what was the age of first word” and “what was the age of first phrase,” but did not specify in which language these milestones occurred. Given that both studies reported no differences between the monolingual and bilingual autistic children, it is not known whether the second language had any effect at all or if the most important factor for all the children was exposure to English or French, the languages in which they were assessed. Future studies should replicate these procedures while controlling for second language exposure to strengthen the results of the previous study.

The Petersen et al. (2012) study also had some limitations. When measuring the size of participants’ vocabulary, the researchers did not double count words with the same concepts (Petersen et al., 2012). This could affect the recorded size of the vocabulary of the bilingual autistic participants. By not counting additional words with the same concepts, researchers may not gain an accurate understanding of bilingual children’s conceptual knowledge. The same concepts may be expressed differently in various languages or have slightly different meanings. Studying these differences may provide more insight into the lexical development of bilingual autistic children. The small sample size of this study is also a limitation. More differences in lexical development may become apparent in larger studies of bilingual autistic children.

Interestingly, bilingualism may influence the use of stereotypic language in autistic individuals. In a study examining social differences between English monolingual autistic children and Spanish-English bilingual autistic children, bilingual autistic children were more likely to use stereotyped language, such as engaging in echolalia, than their monolingual English peers (Valicenti-McDermott et al., 2019). This increased echolalia may be perceived as a negative effect of bilingualism. Typically, echolalia is viewed as repeated utterances that carry no functional meaning (Schopler & Mesibov, 1985). However, echolalia is common in autistic

children and may serve a functional purpose in the autistic child's language, and autistic individuals may use echolalia as a means for facilitating social interaction (Prizant & Duchan, 1981). Therefore, even if bilingualism increases the use of echolalia in autistic children, it would not necessarily preclude the encouraging of bilingualism in autistic children.

Bilingualism may have a positive impact on the development of narrative abilities in autistic children. In a study by Peristeri et al. (2020), monolingual and bilingual autistic children completed several narrative and executive functioning tasks. The researchers found that bilingual autistic children had more advanced skills with mapping pronouns to their referents than the monolingual autistic children (Peristeri et al., 2020). This may be because bilingual individuals have more than one label for a particular referent. Therefore, bilingual autistic children may have less difficulty mapping pronouns to referents because they have more labels for their referents.

Overall, bilingualism does not appear to have any harmful effects on language development in autistic children (Hambly & Fombonne, 2012). Clinicians should not tell parents that bilingualism is detrimental towards their child's language development. In fact, some research indicates that bilingualism may have some benefits for autistic children's narrative development and executive functioning (Hambly & Fombonne, 2012). Since some autistic children have problems with narratives and executive functioning, bilingualism may help mitigate some of these difficulties. However, some benefits of bilingualism in autistic children may not be apparent in early childhood (Hamby & Fombonne, 2012). For instance, over time bilingual autistic children may have larger social networks than their monolingual counterparts due to their ability to communicate in multiple languages.

Summary

Bilingualism does not harm language development in autistic children (Hambly & Fombonne, 2012). Clinicians should take this research into consideration when developing language interventions in this population. No lexical differences were reported between bilingual autistic children and their monolingual peers (Petersen et al., 2012). This demonstrates bilingualism may, at minimum, have no significant effect on language development in autistic children. Bilingualism may also help autistic children map pronouns to their referents (Peristeri et al., 2020). Hence, bilingualism may be beneficial for some autistic children.

Although bilingualism does not have a negative effect on language development, other factors need to be considered before pursuing bilingualism. Speech-pathologists and parents should consider the language abilities of each autistic child before making recommendations for bilingualism (Ohashi et al., 2012). Bilingualism may not be advisable for an autistic child who is distressed using more than one language or if the family has limited resources to facilitate bilingualism at home and in the community. Parents and clinicians should weigh the benefits and consequences of encouraging bilingualism for the child.

Chapter 3

Benefits of Bilingualism in Autism

Bilingualism has been shown to not be detrimental to language development and has the possibility of enhancing the development of language skills in autistic children. In a study by Valicenti-McDermott et al. (2013), researchers examined the differences in receptive and expressive language between monolingual autistic children and bilingual English-Spanish autistic children. The results indicated no differences in the language skills of monolingual English and bilingual English-Spanish autistic children (Valicenti-McDermott et al., 2013). These results are encouraging because they suggest that parents and clinicians are not impeding the autistic child's language development by speaking more than one language. Moreover, researchers found no differences in autistic functioning and cognitive features between monolingual English and bilingual English-Spanish autistic children (Valicenti-McDermott et al., 2013). This suggests there are no differences in cognitive features regardless of the autistic individual's cognitive functioning level and the strength of the individual's cognitive resources for language learning and processing. Furthermore, autistic children who were bilingual English-Spanish had higher tendencies to vocalize and use gestures (Valicenti-McDermott et al., 2013). Since autistic children typically develop speech and language later than their neurotypical peers, these results demonstrate bilingualism may encourage more vocalizations in autistic children who are learning to speak.

Bilingualism in autistic children may offer more benefits beyond language development. For example, research shows bilingualism in autistic people may contribute to increased satisfaction in their social lives. Previous studies had neglected to ask bilingual autistic children how they thought their bilingualism had affected them (Howard et al., 2019). Examining the

perspectives of bilingual autistic children has provided valuable insight on the potential benefits of developing more than one language. The results demonstrated that autistic individuals who spoke more than one language had higher satisfaction in their social lives compared to their monolingual counterparts (Digard et al., 2020). “Social quality of life” was also higher for autistic people who were bilingual or multilingual as compared to those who were monolingual. However, this study had some limitations. The researchers did not make a distinction between autistic people who were strictly bilingual versus multilingual; nor did they consider the timing of when the individual acquired another language (Digard et al., 2020).

Researchers’ knowledge of the benefits of autism and bilingualism is limited. For instance, there is no evidence indicating that quality of life increases with four, five, or six languages (Digard et al. 2020). The research has only shown quality of life ratings improve with the presence of at least one other language. More research is needed to see if this increase in quality of life is linearly related to adding more languages. However, the available research is encouraging and can help clinicians and parents weigh the benefits and consequences of pursuing bilingualism for the child.

Furthermore, bilingualism may aid in set-shifting or transition planning for autistic children. Clinicians may think that bilingualism will confuse the autistic child and, therefore, not consider using bilingualism to help children with set-shifting difficulties. However, children do not indicate they are confused or struggling with language due to their bilingualism (Howard et al., 2019). Hence, bilingualism may be used to help mitigate set-shifting difficulties. In a study by Gonzalez-Barrero and Nadig (2019), researchers found bilingualism may aid in mitigating set-shifting difficulties in autistic children in a lab setting. The researchers had monolingual and bilingual autistic participants complete a computerized developmental change card sort (DCCS)

task, and the bilingual group passed the advanced portion of the task at a higher rate than the monolingual group (Gonzalez-Barrero & Nadig, 2019). This indicates bilingualism could offer an advantage for autistic children in developing flexible thinking (Gonzalez-Barrero & Nadig, 2019).

Bilingualism may also contribute to identity formation in autistic children. The child may consider their bilingualism to be part of their identity as an individual depending on where they use different languages and the child's communication partners. According to a recent study, if an autistic child attended a school where bilingualism is supported, they faced less bullying and were more comfortable with their bilingual identity (Howard et al., 2019). The investigators thought that this was because there are more resources for bilingualism and speaking more than one language was encouraged. On the other hand, if the child was not aware of their autism diagnosis, their bilingualism may not influence the child's perception of being "different" from other students (Howard et al., 2019). Depending on the environmental context of the child, they may think bilingualism is normal for everyone and do not perceive themselves as different.

Summary

Bilingualism may be beneficial to the language development of autistic children. Studies have shown autistic children who are bilingual English-Spanish may use more vocalizations and gestures (Valicenti-McDermott et al., 2013). Bilingualism may also offer benefits to autistic children beyond improving their language development. Research indicates bilingual autistic children have higher satisfaction in their social lives (Digard et al., 2020). Bilingualism may also contribute to the mitigation of set-shifting difficulties in autistic children (Gonzalez-Barrero & Nadig, 2019). Lastly, bilingualism could contribute to autistic children's identity development. If

the autistic child is in a supportive bilingual environment, they may face less bullying and become more comfortable with their bilingual identity (Howard et al., 2019).

Chapter 4

Considerations for AAC Users

Though some autistic people are nonspeaking, this does not mean they cannot communicate bilingually. The use of augmentative and alternative communication (AAC) devices makes it possible for people who are nonspeaking to communicate. However, people with complex communication needs (CCN), who may use AAC, are often advised to focus on a single language and may have less opportunities to communicate in multiple languages (McNamara, 2018). Therefore, autistic people with CCN may have difficulty receiving bilingual speech and language therapy. Although research shows AAC has benefits for bilingual autistic people, there are few resources to help clinicians develop an AAC system for individuals in this population (Tönsing & Soto, 2020). As a result, the use of bilingual AAC systems with nonspeaking autistic children remains largely unexplored. An AAC user may have difficulty with the fluidness of bilingualism if their AAC system is not designed to allow easy access to more than one language. Moreover, AAC systems must account for dialectal differences within languages for individuals to become a fully fluent bilingual.

There is currently no research to suggest multilingual AAC systems are inferior to monolingual AAC systems, but lack of research and guidance on multilingual systems may make clinicians feel hesitant to design one (Tönsing & Soto, 2020). When designing the bilingual AAC system, clinicians should account for the child and family's language preferences. In a study by Aguilar et al. (2015), researchers did a language preference case study with a nonspeaking autistic child who was an English Language Learner (ELL). Using a selection task, the child demonstrated a language preference for Spanish, even when the task reward was the same and color and position of buttons were controlled (Aguilar et al., 2015). This finding

demonstrates bilingual autistic people with CCN are capable of indicating a language preference. Language preference of AAC users is important in developing speech and language interventions and determining language of instruction for the individual (Aguilar et al., 2015). The individual with CCN may be less motivated to participate in speech and language therapy if the clinician is not using their preferred language. Language ideologies influence the way individuals think about language and should be taken into consideration when developing AAC systems for bilingual speakers (Tönsing & Soto, 2020). This refers to the way people think about language and how to use language in particular social contexts. However, more research needs to be done to see if language preference is correlated with better performance and accuracy in language tasks (Aguilar et al., 2015).

Nonspeaking bilingual autistic individuals may face more barriers to bilingual communication than their verbal counterparts. Societal barriers such as inequitable access to AAC devices, lack of resources for bilingual students with disabilities, and community and familial views of bilingualism may prevent AAC users from using more than one language to communicate (McNamara, 2018). There may be social stigma that an AAC device is an “inferior” form of communication, and people who use an AAC device will not try to speak if they have this technology. Thus, bilingualism and AAC is becoming a human rights issue. These societal and policy barriers may require legislative action to ensure equitable access to AAC systems and bilingual speech-language therapy (McNamara, 2018). If the autistic individual only uses an AAC device to communicate, it is almost impossible to achieve bilingualism if the individual does not have access to an AAC system or resources to facilitate language learning that encourages bilingualism.

Language preference of the AAC user who is bilingual may vary depending on the environmental context. For example, an AAC user may indicate a different language preference at home compared to school or a friend's house (Aguilar et al., 2015). Hence, bilingual AAC systems need to be able to switch between languages. In a study by Tönsing and Soto (2020), the researchers emphasized that AAC systems for multilingual users should accommodate code-switching and the integration of multiple language systems and not limit their users with syntactic rules. This will allow the speech output to sound more natural and enable the user to select words in multiple languages for a single utterance.

Summary

Autistic people with CCN are also capable of becoming bilingual using AAC. However, people with CCN who use AAC may be advised to speak a singular language instead of becoming bilingual. This may limit the environments the individual with CCN can communicate in (McNamara, 2018). Furthermore, there is little research on creating bilingual AAC systems, which may influence a clinician's decision to design a bilingual system (Tönsing & Soto, 2020). More research is needed to investigate effective designs for bilingual AAC systems. There are also barriers such as social stigma, lack of accessibility to AAC devices, and community views of bilingualism that prevent autistic individuals with CCN from becoming bilingual (McNamara, 2018). Thus, legislative action and advocacy may be needed to provide resources for bilingual autistic people with CCN. Bilingual individuals using AAC may have different language preferences based on the environment in which they are communicating (Aguilar et al., 2015). Hence, bilingual AAC systems must be able to effortlessly switch between multiple languages for different communicative environments and allow the individual to code-switch within a single utterance.

Chapter 5

Autism and Bilingualism in Certain Cultures

Depending on the linguistic culture the child is part of, social expectations concerning language use may differ. In a study by Yu (2013), researchers conducted a narrative interview study with Chinese immigrant parents who had an autistic child to identify issues in maintaining bilingualism in these families. Researchers found parents had cultural reasons for using two languages with their child, and there were cultural-linguistic expectations they wanted their autistic child to follow. For instance, in Chinese culture, it is seen as disrespectful to answer someone who is speaking Chinese by speaking in English (Yu, 2013). If an autistic child was only able to speak English, they could not communicate with relatives who speak another language. Furthermore, the child may not be able to conform to cultural-linguistic norms when they are communicating with others if they have not learned the social aspects associated with different languages.

In the same study, Chinese parents felt speaking Chinese would help teach their children about Chinese culture (Yu, 2013). Therefore, parents of autistic children may want to speak their native language to teach their children about their culture. Cultural immersion could potentially facilitate language learning, which may encourage parents to pursue bilingualism for their autistic child.

Religion and spiritual life may be an important aspect of cultural beliefs. In some cultures, children need to speak different languages to fully participate in religious life (Jegatheesan, 2011). This can include different languages for religious services, songs, or prayers. For instance, Islam and Judaism have linguistic components for prayers and readings from holy texts (Jegatheesan, 2011). If the child cannot recite prayers, understand sermons, or

converse with people in the religious community, the autistic child may not be able to fully integrate themselves into religious life.

Jegatheesan (2011) interviewed three Muslim immigrant families on their communicative goals and perspectives on bilingualism for their autistic children. Each family had various expectations for their child to participate in religious life and used a variety of methods to teach their children religious concepts. Some parents modeled prayers for their children and prayed with them at certain times of the day, while other parents had the autistic child's siblings record prayers and readings for the autistic child to listen to (Jegatheesan, 2011). Modeling from parents, siblings, and other figures in the religious community may help the autistic child feel included and facilitate their understanding of their beliefs and religious teachings.

Autistic children across cultures may have difficulty with the abstractness of religion and have limited participation in religious life that is not solely based on whether they can speak the language of the religious community. The autistic child may need help understanding concepts such as the idea of a higher power or interpretations of religious texts.

Not all religions have a linguistic component. For instance, Christianity does not have an associated language with it. Services are usually given in the vernacular, unless it is a Latin service such as those associated with some Roman Catholic communities. Therefore, if the autistic individual is not part of a religious community with a linguistic component, they may not need to learn a new language to participate in religious services. However, they would still have the challenges associated with the abstractness of religious concepts.

On the other hand, religion may not be heavily emphasized in more individualistic cultures. This means the autistic individual may not need to participate in religious services to be

accepted by that culture. For instance, countries such as the United States have a more individualistic culture, and there is no official religion. Hence, it is not necessarily expected for people in American culture to have a specific religious affiliation. However, countries such as England and Pakistan have recognized official religions, therefore, religious participation may be more expected in the culture of such countries.

Summary

Speaking the language associated with a cultural community may be important for the autistic individual to be accepted and to fully participate in that community. Despite differences in cultures, there are some similarities across cultures in terms of cultural effects of autism and bilingualism. Autistic children across cultures may have difficulty with social use of language unless they are explicitly taught the social rules. Moreover, autistic children may have difficulties with abstract concepts across cultures in particular those that are associated with religion.

Chapter 6

Making Evidence-Based Recommendations

There seems to be a disconnect between what the research says about autism and bilingualism versus the recommendations clinicians are making (Beauchamp & MacLeod, 2017). This can create issues for clinicians when developing interventions for autistic individuals in bilingual families. Research shows bilingualism in autistic children is not detrimental to language development (Beauchamp & MacLeod, 2017). However, clinicians may still advise families to pursue monolingualism for the child depending on the child's current language skills. Although clinicians may advise families to only speak one language to their autistic child, language input in the context of the family is more complex (Yu, 2016). There may be contexts where family members speak another language to one another and not directly speak to the autistic child. However, the child is still receiving bilingual input even though the child is not being directly addressed (Yu, 2016). Thus, trying to speak only one language to the child may not be realistic if the child is still receiving indirect bilingual input.

When making evidence-based recommendations, clinicians must understand that the child may get bilingual language input, regardless of whether the family decided on monolingualism or bilingualism. Families may only speak English to their child, but they may still use their native language in the home. For example, Yu (2016) conducted an in-depth case study on a six-year-old autistic boy whose family spoke Mandarin-Chinese, but only spoke English to him. Even though the family only spoke English to the autistic child, the child was still receiving bilingual input from other family members speaking Mandarin-Chinese to each other (Yu, 2016).

Furthermore, the English the bilingual family uses in the home may undergo code mixing with the minority language in their daily speech. Family members may also speak their native language using English words, thus “infusing” their English into their native language. Infusing is not the same as code-switching and is almost idiomatic (Yu, 2016). Ultimately, it may be unrealistic to expect parents who are bilingual or multilingual to communicate with their child in a single language.

When developing interventions for bilingual autistic children, clinicians need to have a more accurate understanding of the language input the child is currently receiving. This information can be obtained through a parent report. When a child comes from a bilingual or multilingual home, the clinician does not need to know the minority language, rather they should work with the parent so that they can implement what the child is learning from the clinic in the home setting (Lim et al., 2018).

In a study by Kay-Raining Bird et al. (2016), researchers use Bronfenbrenner’s Ecological Systems Model to show how lasting bilingualism is supported by different contexts in which the autistic child participates. Autistic children need to communicate in various contexts outside the home, and bilingual language interventions need to be supported by these contexts. By understanding the contexts in which the autistic child needs to communicate, speech-language pathologists can determine the child’s linguistic needs, the supports the child needs, and the communication partners the child has. However, clinicians must always take what the family wants into account for intervention (Beauchamp & MacLeod, 2017). The family is part of the child’s microsystem and mesosystem, which means family members have the most contextual influence on the child’s language development. The autistic child ideally needs the support of their family giving them input, the language at school giving them input, resources

supporting bilingualism in the community, and legislation that promotes bilingualism (Kay-Raining Bird et al., 2016). These supports will help the child get language input from both languages and give the child opportunities to use both languages in everyday contexts.

Moreover, enacting policies to encourage bilingual language learning in autistic children would support the development of evidence-based practices for this population.

Even though there is research on how to facilitate bilingualism in autistic children, there are few resources for clinicians to use when developing interventions. There are no specific research-based practices for clinicians to implement for bilingual autistic children (Lim et al., 2018). Hence, clinicians may need to create their own resources and strategies for this population.

Clinicians can support heritage language learning by instructing the parent how to use structured play activities outside of the clinical setting (Lim et al., 2018). The parents can continue interventions introduced in speech and language therapy in the heritage language outside of the therapy setting. This may be especially helpful if the clinician is not bilingual. If the child is not receiving support for bilingualism in their everyday environments, it will be difficult for the autistic child to achieve bilingual success (Kay-Raining Bird et al., 2016). Thus, parental collaboration outside of clinical activities is essential for fostering and maintaining bilingualism in autistic children.

Future research must focus on developing evidence-based practices for language learning in bilingual autistic children. Research on bilingual development in autistic children may encourage families to pursue bilingualism for their child. Although clinicians have guidelines on how to treat autistic bilingual children, there are no well-developed evidence-based practices for this population. More research on this population would facilitate the development of clinical

resources and recommendations for intervention. This will take more responsibility away from individual clinicians and help the clinician focus on developing therapy goals for the child.

Chapter 7

Conclusion

Research indicates that bilingualism is not harmful to language development in autistic children (Hambly & Fombonne, 2012). In fact, bilingualism may help improve social quality of life for autistic children, help develop their cognitive skills, and prevent set-shifting difficulties that are typically seen in autistic children (Digard et al, 2020; Gonzalez-Barrero & Nadig 2019). Given that autistic children may have difficulties with social aspects of language, bilingualism may improve these areas of language for autistic children. The family and the speech-language pathologist must collaborate to consider the benefits and drawbacks of pursuing bilingualism to make the best decision for autistic children being raised in bilingual and multilingual environments.

Individual factors must be considered before making decisions on pursuing bilingualism for an autistic child (Ohashi et al., 2012). The perspectives of speech-language pathologists and parents will influence the decision to pursue bilingualism for the autistic child. Parents may be reluctant to pursue bilingualism for their autistic child because they may not feel comfortable being English language models for their children (Howard et al., 2021). Another factor that has to be considered is that the child may be unable to communicate with extended family or members of their community if they are forced to learn only the majority language (Yu, 2013). The decision whether to pursue bilingualism is also influenced by the social expectations of language use in various cultures. Some cultures may use other languages during religious services or in specific social contexts (Jegatheesan, 2011; Yu, 2013). Therefore, the autistic child will have difficulty participating in these cultural activities if they do not understand the language in which religious activities are conducted.

Autistic children with complex communication needs (CCN) who communicate using AAC may experience more difficulties with bilingual access than autistic children who communicate with spoken language. Barriers to bilingual access are the lack of research on bilingual AAC systems, policy barriers, and social barriers. Legislative action may be needed to provide resources for bilingual people with CCN and advocacy may be needed to discourage the stigma of using AAC to communicate (McNamara, 2018). Furthermore, lack of research on bilingual AAC systems may make clinicians hesitant to design one (Tönsing & Soto, 2020). Future research is needed on effective designs for bilingual AAC systems to provide guidance for speech-language pathologists providing services to autistic children who are bilingual.

To facilitate and maintain bilingual language learning in autistic children, several supports must be in place. Bilingualism should be encouraged in the contexts in which the autistic child interacts (Kay-Raining Bird et al., 2016). Without support, it may be difficult for the child to learn and maintain a second language. Clinicians should instruct parents on how to foster native language learning while the child is also receiving input in the majority language (Lim et al., 2018). Future research should aim to develop more specific evidence-based recommendations for bilingual autistic children. This may relieve clinicians from individual responsibilities of creating their own assessment and intervention materials. Provision of specific guidance and materials would support speech-language pathologists in the provision of services to autistic children who are being raised in multilingual and bilingual environments, helping them and their families to have the best possible outcomes for these children.

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ACADEMIC VITA

OLIVIA M. SARRACINO

EDUCATION

Bachelor of Science, *Communication Sciences and Disorders*,

ANTICIPATED: MAY 2022

The Pennsylvania State University, University Park, PA

Schreyer Honors College

Minors: *Human Development and Family Studies; Rehabilitative and Human Services*

The Pennsylvania State University Dean's List

FALL 2018-PRESENT

CLINICAL AND OBSERVATION EXPERIENCE

The Penn State University Speech-Language-Hearing Clinic (University Park, PA) SEP 2021-DEC 2021

Student Observer and Volunteer; University Clinic Setting; Pediatrics; In-Person Therapy

- Contributed to small group sessions for clients diagnosed with autism and speech sound disorders by assisting with creative lesson plans that utilize modeling and interactive book reading to support play, speech sound development, and communication skills.
- Strengthened clinical evaluation skills by collecting data during the administration of the GFTA-3.

Master Clinician Network (Virtual)

JUN 2020-DEC 2020

Student Observer; Therapeutic Simulations; Pediatrics and Adults; In-Person Therapy

- Observed communication therapy for clients diagnosed with language impairments, speech sound disorders, autism, fluency disorders, aphasia, voice disorders, and motor speech difficulties.
- Bolstered understanding of the following evidence-based practices: traditional articulation therapy, Melodic Intonation Therapy, recasting, and rhythmic pacing.
- Enhanced knowledge of transgender voice therapy by observing a speech-language pathologist target speech and non-verbal communication to achieve the client's vocal feminization goals.

The Penn State University Speech-Language-Hearing Clinic (University Park, PA) FEB 2019-MAR 2019

Student Observer; University Clinic Setting; Pediatrics; In-Person Therapy

- Exposed to effective treatment approaches for young clients diagnosed with phonological disorders by observing the implementation of phonological awareness training and minimal pair instruction.
-

RESEARCH AND PRESENTATIONS

Undergraduate Honors Thesis, The Pennsylvania State University

JAN 2021-APR 2022

Title: "Review of Research on Bilingualism and ASD: Recommendations for Evidence-Based Practice"

Advisor: Dr. Diane Williams, Ph.D., CCC-SLP

- Analyzed the effects and benefits of bilingualism on language development in individuals with autism.
- Drafted an integrative review of the literature to be published for clinical use.

Research Assistant, Cognition and Language Learning Lab

JAN 2020-PRESENT

The Pennsylvania State University

- Contributed to research investigating verbal and visuospatial skills in autistic adults by developing a rubric for reliability and transcription coding and assisting in scoring and transcribing participant data.
- Presented to the lab research on disability culture, speech-language pathology, and college transition planning for students with autism.

Student Researcher, CLL Lab Reading Group Member

OCT 2020-APR 2021

- Read published literature on autism in individuals with underrepresented genders and racial backgrounds and contributed to discussions about clinical use, future implications, and the importance of diversity in research.

Presenter, Penn State University NSSLHA Undergraduate Research Event

NOV 2020

Title: *“Verbal Encoding and Visuospatial Recall in Autism”*

- Presented research from the Cognition and Language Learning Lab to professors and students.

RELATED EXPERIENCE

Job Coach, ACRES Project (State College, PA)

JUL 2021-PRESENT

- Provided specialized instruction for students who demonstrated a need for intensive support due to global learning deficits secondary to Down syndrome and autism, resulting in increased independent living skills.
- Served as a peer mentor to an autistic adult by supporting employment goals, vocational training, encouraging inclusion, and utilizing community-based support.

Teaching Assistant, Penn State University CSD 146 (University Park, PA)

AUG 2019-DEC 2021

- Mentored and tutored students within the Communication Sciences and Disorders program by supporting academic expectations, supplying resources, and acting as a support system.
- Promoted strategies for time management, organization, study, and self-advocacy skills, resulting in students achieving increased academic success.

LEADERSHIP EXPERIENCE

Secretary, Pennsylvania State University NSSLHA (University Park, PA)

APR 2021-PRESENT

- Improved leadership and organizational skills by encouraging students to attend chapter meetings and events, maintaining detailed records of attendance, and updating the organization’s web page with accurate information following each meeting.

GLOBE House Representative, Penn State University (University Park, PA)

APR 2019-MAY 2020

- Collaborated with the GLOBE executive board and College of Education to organize and successfully execute the Humphrey Fellows event, resulting in increased awareness of education policies around the world.
-

COMMUNITY INVOLVEMENT

Member, Days for Girls (University Park, PA)

AUG 2020-PRESENT

- Sewed reusable pads and created menstruation kits for women and adolescents in areas of period poverty.
- Served as an advocate and educator for period poverty resources and first-time menstruators.

Volunteer, Our Lady of the Assumption Parish (Wood-Ridge, NJ)

MAY 2021-AUG 2021

- Trusted to maintain and review Baptismal records and write background check letters for volunteers.
- Assisted in grading workbooks and tests for students of the hybrid religious education classes.

Member, Sign Language Organization (University Park, PA)

AUG 2019-DEC 2020

- Advocated for awareness of Deaf Culture and the practice of cultural competence in the health professions.
- Enhanced knowledge of basic greetings and questions in American Sign Language.

Member, The GLOBE at the Pennsylvania State University (University Park, PA)

AUG 2018-MAY 2020

- Hosted and moderated group discussions between attendees and group presenters on global illiteracy and sign language around the world.

AWARDS

Robert Robinson Academic Excellence Scholarship, Recipient

FALL 2019-PRESENT

Schreyer Honors Academic Excellence Scholarship, Recipient

FALL 2018-PRESENT

CERTIFICATIONS AND ORGANIZATIONS

National NSSLHA, Member

JAN 2021-PRESENT

ASHA Special Interest Group (SIG) #14, Cultural and Linguistic Diversity, Member

JAN 2021-PRESENT

Mental Health First Aid (MHFA)

MAR 2021

Pennsylvania State University NSSLHA, Member

AUG 2019-PRESENT

LANGUAGES

- **English**- Native, Fluent
- **Spanish**- Basic proficiency in speaking, reading, and writing
- **French**- Basic proficiency in reading