The Report Committee for Charity Symone Nwankpa
Certifies that this is the approved version of the following report:

The Manifestation of Stuttering in Spanish-English Bilingual Speakers:

A Systematic Review

APPROVED BY
SUPERVISING COMMITTEE:

Supervisor:

Courtney T. Byrd

Elizabeth Hampton

The Manifestation of Stuttering in Spanish-English Bilingual Speakers: A Systematic Review

by

Charity Symone Nwankpa, B.S.

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Dedication

I dedicate this report to my cheerleaders/support team: my mom, Dr. Hope C. Luster, my aunt, Faith C. Monah, my grandmother, Shirley A. Luster, my dad, Ezinwa Nwankpa, and the rest of my family that supported me through this journey! I love you all dearly.

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Elizabeth, thank you for cooperation and feedback not only during my report, but throughout my graduate clinical studies.

To my other UT professors and staff, thank you for making this one of the best learning experiences I have encountered.

Abstract

The Manifestation of Stuttering in Spanish-English Bilingual Speakers: A Systematic Review

Charity Symone Nwankpa, M.A.

The University of Texas at Austin, 2015

Supervisor: Courtney T. Byrd

The purpose of this systematic review was to analyze the descriptions of bilingual Spanish-English (SE) participants provided in stuttering literature to determine whether critical factors were used to define bilingualism and appropriate criteria were used to classify stuttering. The method included a systematic search of published studies that included bilingual Spanish-English participants who stutter and reviewed the level of detail provided regarding language history, function, proficiency, stability, mode, accent, covert speech, and affective factors. The identification and diagnosis of stuttering was also analyzed using disfluency factors that were reported across the studies. Those factors included formal diagnosis, monolingual guidelines, self-report, parent/teacher concern, informal observation, family history, and disfluency types. Ten studies qualified to be included the bilingualism analysis, consisting of over 15 different speakers who were identified as bilinguals who stutter. Nine out of the 10 studies qualified to be included in

the stuttering analysis of the systematic review. Of the 10 studies analyzing bilingualism, the most frequently reported language profile information involved language proficiency, language history, and language function. Affect, accent, mode, and language stability information were the least mentioned language factors in the studies. Of the nine studies included in the disfluency analysis, the most commonly reported disfluency profile information involved disfluency types, comparison to monolingual normative data, and informal observation. The least reported disfluency factors in the studies were formal diagnosis, parent/teacher concern, self-reported stutterer, and family history of stuttering. Results demonstrate that the definition of bilingualism and the classification of stuttering among bilinguals is lacking and inconsistent.

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Introduction

In the United States (U.S.), there are an estimated 60.5 million individuals over the age of 5 who speak a language other than English (United States Bureau of the Census, 2011). Within that group, Spanish-English (SE) bilingual speakers account for 62% of the multilingual population, and Spanish is considered to be the second most widely spoken language in the U.S. (Taliancich-Klinger, Byrd, & Bedore, 2013; United States Bureau of the Census, 2011). An estimated 1% of the world's population stutters. Among the population of individuals who stutter, the number of adults and children who stutter who are bilingual is not known (Taliancich-Klinger et al., 2013; Van Borsel, Maes, & Foulon, 2001). However, the numbers are rapidly growing and will continue to grow. Thus, SLPs must increase their knowledge and training regarding the differential diagnosis of stuttering in speakers of more than one language.

Currently, there are limited data concerning the manifestation of stuttering in SE bilinguals (Ardila, Ramos, & Barrocas, 2011; Bernstein Ratner & Benitez, 1985; Carias & Ingram, 2006; Dale, 1997; Howell et al., 2004; Taliancich-Klinger et al., 2013). There are several key concerns that compromise the interpretation of the studies that have been completed thus far. First, investigation of Spanish-English participants who stutter are often limited to case studies (Ardila et al., 2011; Bernstein Ratner & Benitez, 1985; Carias & Ingram, 2006; Coalson, Peña, & Byrd, 2013; Dale, 1997). Also, the language abilities and experiences among bilingual speakers are diverse, yet the majority of the bilingual studies in the stuttering literature simply describe the speaker as being bilingual

and do not provide any further information regarding language history, ability, or use. Yet another critical confound regarding past research is the large majority of the studies have either provided no information specific to how they identified stuttering or they relied on monolingual English speaking criteria to classify stuttered speech. The purpose of the present study is to systematically review the studies that have been completed to date with respect to the manner in which bilingualism and stuttering has been defined among the participants. This systematic review will enhance our understanding of the research that has been completed with bilinguals who stutter and will provide valuable directions for future research.

CONSIDERATIONS FOR IDENTIFICATION OF STUTTERING VERSUS TYPICAL FLUENCY

In order to identify and diagnose stuttering, researchers and clinicians typically use the existing standard based on monolingual English children who stutter reported by Ambrose and Yairi (1999). Although there maybe overlapping similarities in the stuttering-like disfluencies produced in English and Spanish, there are discrepancies when comparing the disfluent speech of two distinct languages. Byrd, Bedore, and Ramos (2015) provide suggestions for diagnosis of stuttering in bilingual SE speakers through the thorough analysis of 18 Mexican-American kindergarteners (9 males, 9 females; age = 5;6 – 6;7 years) who were recruited from school districts in central Texas. The participants in their study were considered typically fluent based on the following considerations: 1) none of the children had any present or prior history of parent or teacher concern regarding the fluency of the child's speech, 2) the bilingual SE doctoral

students who collected the speech samples in both languages and administered the speech-language testing did not report any concerns of atypical speech disfluency, and 3) the three authors along with an additional bilingual student (blind to the purpose of the study) analyzed the recordings of the narrative samples that were produced in English and Spanish by each child in which none of the four noted any atypical speech disfluencies in the participants.

The researchers analyzed the differences in participant disfluency patterns between languages by eliciting Spanish and English narratives. The data collected were later compared to the monolingual English speaking guidelines for differential diagnosis of stuttering. The study included percentages, identification, description, and examples of the types of speech disfluencies considered to be stuttering-like versus nonstuttering-like based on children who were SE balanced bilinguals, bilingual English dominant, and bilingual Spanish dominant. The authors determined that more proficiency in a language may not be as critical to disfluency as the nature of the language being spoken (Byrd et al., 2015). However, the amount of SLDs that are produced depend on the language the child is speaking; all 18 children in their study produced significantly more stuttering-like disfluencies in Spanish than in English. Also, the participants produced a high number of iterations such as, monosyllabic word repetitions and sound repetitions. About 90% of the fluent children produced monosyllabic word repetitions in both Spanish and English samples, while only 67% of the participants produced sound repetitions in either English or Spanish. None of the participants produced inaudible or audible sound prolongations, which may be indicative of stuttering in bilinguals since it did not occur among the

children who do not stutter. Additionally, the participants did not produce any secondary behaviors, atypical tension, or atypical rhythm, which may also prove to be factors for identifying stuttering in bilinguals. Disfluencies produced in English and Spanish may not overlap, however, as established by Byrd et al. (2015) study, fluent bilingual SE children tend to produce more SLD and non-stuttering like disfluencies (NonSLD) in Spanish due to the complexity of the language. The article suggested if an individual presents with the following factors: secondary behaviors, atypical tension during speech, atypical rhythm in repetition, and/or inaudible/audible sound prolongations, then those factors may be indicative of true stuttering in a bilingual Spanish-English speaker.

CONSIDERATIONS FOR DEFINING BILINGUALISM

It is often challenging to distinguish the language abilities of a bilingual speaker due to the diversity of bilingual experiences. Coalson, Peña, and Byrd (2013) explained that conflicting research outcomes in existing stuttering literature were due to inconsistent interpretation of how bilingual speakers acquire and use each language. Bilingual speakers typically learn and foster language skills for different purposes, within diverse environments, and with various people (Grosjean, 2004). Comparisons across studies are further compromised by the lack of standardized procedures and terminology to describe the bilingual experience (Coalson et al., 2013). Fortunately, Coalson and colleagues (2013) created a detailed model for characterizing language profiles of multilingual participants who stutter.

The authors explained the theoretical importance of factors associated with language experiences and abilities based on Grosjean's (2004) standards: language history, function, proficiency, stability, and mode. Coalson and colleagues included three additional factors that were not identified in Grosjean's (2004) framework, but were frequently reported across multilingual language profile questionnaires: degree of accent, language of covert speech, and affective variables. Using the eight-factor framework, the researchers completed a systematic review of multilingual stuttering literature. The eight language profile factors established a standard for examining bilingualism in present bilingual SE stuttering literature. In this review, the eight-factor framework was slightly adapted to include the assessments and questionnaires used across bilingual Spanish-English studies to determine how bilingualism was defined (See Table 1 for details).

Table 1. Factors Included Across Selected Bilingual Language Profile Questionnaires and Assessments

Questionnaire/Assessment	History	Function	Proficiency	Stability	Mode	Accent	Covert speech	Affect
History of Bilingualism, and language background questionnaires [a]	√	√	√					
Language background questionnaire [b]	√	√	√					
Family history, language history, and language use questionnaires [c]	√	√	√		√			√
Parent–teacher questionnaire [d]		√	√		√			
Language history questionnaire [e]	√	√	√		√	√	√	√
Language Experience and Proficiency Questionnaire [f]	√	√	√			√		√
Bilingual language history and proficiency form [g]	√	√	√					
Bilingual Dominance Scale [h]	√	√	√	√		√	√	√
Bilingualism and emotions questionnaire [i]	√	√	√		√		√	√

Table Adapted from: Coalson et al. (2013).

Note: Full Questionnaires and Assessments found in the following sources:

[a] Subtests of the Bilingual Aphasia Test (Paradis, 1987, pp. 46–51).
[b] Liow and Poon (1998).
[c] Munoz, Marquardt, and Copeland (1999).
[d] Gutiérrez-Clellen and Kreiter (2003).
[e] Li, Sepanksi, and Zhao (2006).
[f] Marian, Blumenfeld, and Kaushanskaya (2007).
[g] Roberts and Shenker (2007).
[h] Dunn and Fox Tree (2009).
[i] Dewaele (2010, pp. 224–230).

PURPOSE

Understanding how an individual is categorized as a bilingual speaker and recognizing the types of disfluencies SE speakers who stutter typically produce are vital to determining 1) the overall language abilities and experience of the speaker and 2) if the bilingual SE speaker is a true person who stutters. Using Coalson et al.'s (2013) language profile framework and Byrd et al.'s (2015) criteria when identifying disfluencies in bilingual SE speakers, the present study will systematically review how bilingualism and stuttering is defined among existing research in bilingual SE speakers. This information

would provide a greater understanding of the limitations in present data and critical considerations for future research.

Methods

A systematic review of Spanish-English bilingual participant descriptions provided in stuttering literature was conducted using the eight-factor framework created by Coalson and colleagues (2013) in their review of multilingual participants who stutter and Byrd et al. (2015) study of the disfluent speech of bilingual SE speakers. Both structures allowed for a comprehensive evaluation of information provided in participant descriptions within the bilingual Spanish-English stuttering literature. Table 2 provides a definition for each language profile factor that will be used in the systematic review.

Table 2. Definition of Language Profile Factors

Language Factor	***Definition***
History	when and how language skills were first acquired
Function	current environmental demands for language use
Proficiency	current degree of skill within each language modality
Stability	whether one or both languages are currently being acquired, or in some cases lost
Mode	whether interaction during task is with bilingual speakers or situations versus monolingual situations
Degree of accent	"rough index" of L2 experience and preference
Language of covert speech	language used during "mental speech" or "inner speech"
Affective factors	overall comfort and willingness to speak in a given language, particularly a non-dominant language

(Byrd et al. (2015); Coalson et al. (2013); Grosjean (2004).)

FACTOR DESCRIPTION

To determine the specific information to be linked with each language factor, distinct descriptors for assessing bilingual SE speakers were established based on Coalson et al. (2013) systematic review on multilingual stuttering literature. Table 3 provides descriptors derived for each of the eight language factors created by Coalson and colleagues (2013). The factors within the language profile questionnaires that were included in the review by Coalson et al. (2013) relate to the bilingual SE stuttering literature to date due to the same types of questionnaires given to the participants throughout the bilingual SE studies. With that knowledge, the factors included across selected multilingual language profile questionnaires would also apply to this review of bilingual Spanish-English participants.

Table 3. Descriptors for Language Profile Factors

Factor	***Descriptors***
Language History	Age or years since first exposure Simultaneous/order of acquisition Languages spoken or heard at home as a child Language spoken or taught at school Years of formal language instruction
Language Function	Amount of use per language (e.g. hourly, daily, weekly, monthly, yearly, overall) Amount of current media exposure to each language Languages currently spoken at work/home/school/social events Languages currently spoken with friends/family/co-workers
Language Proficiency	Subjective or objective ability to speak, understand, read and/or write each language
Language Stability	Degree of proficiency loss, if any Age of proficiency loss, if any
Language Mode	Participant reported as aware of bilingual testing or communicative partner Frequency or context of code-switching Languages currently spoken by family/friends/spouse/co-workers
Degree of accent	Degree of accent perceived by speaker or by others
Covert speech	Language used when performing mental arithmetic or forming sentences silently
Affective variables	Age of comfort Level of anxiety toward speaking Overall language preference Language used when express emotion

(Byrd et al. (2015); Coalson et al. (2013); Grosjean (2004).

To determine the factors used to identify bilingual speakers who stutter, an analysis of the ten studies were critiqued for how they diagnosed and identified the participants in their study. Table 4 provides the descriptors explaining the disfluency factors derived from the critique.

Table 4. Descriptors for Bilingual Disfluency Profile Factors

Factor	***Descriptors***
Formal Diagnosis	Participant diagnosed by a licensed speech language pathologist or graduate student studying to become a speech language pathologist.
Monolingual Guidelines	Normative data on English monolingual speakers who stutter.
Self-Report	Questionnaires detailing a participant's personal concerns about fluency when speaking.
Parent/Teacher Report	Parent or teacher's concerns about the fluency of a speaker. Typically derived from questionnaires.
Informal Observation	Clinician observes for patterns of disfluencies without completing a formal assessment or report.
Family History of Stuttering	Does the participant have family members who stutter?
Disfluency Type	Stuttering like disfluencies Non-Stuttering like disfluencies

SEARCH PROCEDURE

The search procedure included three online databases:

1) EBSCO, including the following databases: Academic Search Complete, Communication & Mass Media Complete, eBook Collection, ERIC, MEDLINE, and PsychINFO;

2) MEDLINE, with lemmatization turned on (i.e., explored substitute forms of the search terms);

3) Google Scholar Advanced, including the following categorical subject areas: (a) Biology, Life Sciences and Environmental Science, (b) Medicine, Pharmacology, and Veterinary Science, and (c) Social Sciences, Arts, and Humanities. Search terms occurred in the title of the article in Google Scholar, and the time frame for all databases included items published between January 1900 and November 2014.

Additionally, a manual search of studies cited in book chapters dedicated to this topic (Bernstein Ratner, 2004; Roberts & Shenker, 2007; Van Borsel, 2011) and a relevant literature review (Van Borsel et al., 2001) was performed.

Search Terms

The following search terms were used to locate studies including bilingual Spanish-English participants who stuttered in three main categories: *bilingual*, with alternate terms including *bilingualism*, *multilanguage*, *multilingual*, *multilingualism*; and *stutter*, with alternate terms including *stuttering*, *disfluent*, *disfluency*, *dysfluent*, *dysfluency*, *nonfluent*, *stammer*, *stammering*; *Spanish*, with alternate terms including

hispanic, *cuban*, and *latin*. All possible combinations of bilingual and stuttering terms resulted in 180 search term combinations. A total of 275 non-overlapping entries were found from these terms.

Inclusionary and Exclusionary Criteria

Abstracts, background/introduction, and methods of the 275 articles were identified and reviewed. Studies were selected for inclusion in the synthesis if they met the following inclusion criteria:

1. Adult or child participants were described as both stuttering and speaking or having knowledge of both English and Spanish
2. Provided the original and previously unpublished data
3. Published in English

Articles were excluded from the systematic review if stuttering was described only as normal disfluencies (i.e., interjections, phrase repetitions, revisions, single whole-word repetitions), or if stuttering was described as acquired, neurogenic, or otherwise non-developmental. Unpublished manuscripts or reports, non-referenced publications, conference proceedings and posters were not included in the review.

Search Review

Of the 275 unique items yielded from the search terms, majority of the articles included the following: 1. not peer-reviewed; 2. did not present original or previously unpublished data; 3. did not describe participants as bilingual or multilingual; 4. participants or their speech was not described as stuttering according to the established

criteria; 5.stuttering was defined as acquired or neurogenic; 6. not published in English. This resulted in 10 studies for the review. Among the 10 studies, Byrd et al. (2015) study was included in the review for defining bilingualism, but not in the analysis of disfluencies in bilingual speakers because the participants included in the study were not diagnosed as children who stutter. Two of the 10 studies, Cabrera and Bernstein (2000) and Howell et al. (2004), were reviewed in the Taliancich-Klinger et al. (2013) article. Although physical copies of Cabrera and Bernstein (2000) case report and Howell et al. (2004) study were not obtained, the information provided in Taliancich-Klinger et al. (2013) article assisted in the review of SE participants in each study. In total, eight data-based, referenced articles examining bilingual Spanish English stuttering participants were included in the analysis. Full copies of the eight articles were obtained via online databases.

REVIEW PROCEDURE

The eight studies were analyzed using a full review of the methods, results, and discussion sections of each study. The remaining two of the 10 studies by Cabrera and Bernstein (2000) and Howell et al. (2004) were examined by the information provided by Taliancich-Klinger and colleagues (2013). Any quantitative and qualitative descriptors provided in the text were categorized based on the adapted eight-factor framework created by Coalson et al. (2013) outlined in Table 2. A study was scored as including a factor if at least one descriptor was reported. Of the usable articles, 35 total unique

bilingual SE participants and 17 bilingual SE stuttering participants were described (see Table 5 and Table 6).

Results

Scope of Language Profiles

An examination analyzing the extensiveness of language profiles reported across studies of bilingual SE speakers who stutter was conducted in this review. Specifically, the main points addressed were (1) how frequently factors were included in all 10 studies, and (2) how frequently factors co-occur within studies. Table 3 illustrates language factors included across and within studies.

Scope of Disfluency Profiles

An investigation studying the comprehensiveness of disfluency profiles reported across studies of bilingual SE speakers who stutter was also conducted in this review. The main points addressed were (1) how frequently factors were included in nine studies, and (2) how frequently factors co-occur within studies. Table 4 demonstrates disfluency factors included across and within studies.

Across Studies

As demonstrated by Fig. 1, the most frequently provided language profile factors, in order, were proficiency (90%), history (80%), and function (60%). The least frequently provided factors across studies were stability (50%), mode (40%), accent (30%), and affect (30%). None of these studies (0%) provided information about language of covert speech.

As revealed in Fig. 2, the most commonly provided disfluency profile factors, in order, were disfluency types (SLD and NonSLD) (100%), comparison to monolingual normative data (78%), and informal observation (78%). The least frequently provided factors across studies were formal diagnosis (56%), parent/teacher concern (56%), self-reported stutterer (22%), and family history of stuttering (11%).

Within Studies

Overall, the three most frequent language profile factors across studies, language proficiency, history, and function, were also the most frequently co-occurring language factors within the study. Of the 10 studies reviewed, six included all three factors (60%) and two studies included two of these factors (20%). One study included only one of these factors (10%). The remaining study (10%), described in Taliancich-Klinger and colleagues (2013) article did not provide information to assess the history, proficiency, and function of the participants in the study. Infrequently reported factors (i.e. stability, mode, accent, and affect) were provided only when language history information was included in the study or specific descriptions were used to determine the aforementioned factors. The specific factors included within each study are depicted in Table 5.

Table 5. Summary of Studies Utilizing Language Profile Factors

Article	*n*	Age (years)	Type of Study	History	Function	Proficiency	Stability	Mode	Accent	Covert speech	Affect	Total
Dale (1977)	4	13[a]	D	√		√	√				√	50%
Bernstein Ratner and Benitez (1985)	1	50	D	√	√	√						38%
Cabrera and Bernstein Ratner (2000)	1	5	D					√				13%
Howell et al. (2004)	1	11;9	D			√						13%
Carias and Ingram (2006)	4	7[a]	D	√	√	√						38%
Ardila et al. (2011)	1	27	D	√	√	√						38%
Taliancich-Klinger et al. (2013)	1	6;1	D	√	√	√	√	√	√		√	88%
Savio Lee et al. (2014)	2	19[a]	D	√		√	√		√			50%
Byrd et al. (2015)	18	6[a]	D	√	√	√	√	√	√		√	88%
Byrd et al. (in Press)	2	6[a]	D	√	√	√	√	√				63%
Total	35	-	-	80%	60%	90%	50%	40%	30%	0%	30%	

Note: D, descriptive data.
[a] Average age of sample.

Overall, the three most frequent disfluency profile factors across studies, disfluency types (SLD and NonSLD), comparison to monolingual guidelines, and informal observation, were also the most frequently co-occurring disfluency factors within the study. Of the nine studies reviewed, six included all three factors (67%) and two studies included two of these factors (22%). The remaining study (11%), included only one of these factors and did not provide information regarding if the participants were compared to monolingual guidelines or received informal observation during the study. Infrequently reported factors (i.e. formal diagnosis, parent/teacher concerns, self-

report, and family history of stuttering) were provided mainly when a description of stuttering diagnosis was included or if the factor was explicitly stated in the study. The specific disfluency factors included within each study are depicted in Table 6.

Table 6. Diagnostic and Identification of Bilingual Spanish-English Participants Who Stutter

Article							Disfluency Type		Total
	Formal Diagnosis	Compared to Monolingual Guidelines[a]	Self-Report as Stutterer	Parent/Teacher Concern	Informal Observation	Family History of Stuttering	Stuttering Like Disfluencies (SLD) English, Spanish, or Both	Non-Stuttering Like Disfluencies (NonSLD) English, Spanish, or Both	
Dale (1977)	-	√	√	√		-	S	S	63%
Bernstein Ratner and Benitez (1985)	√	√	√		√		B	B	75%
Cabrera and Bernstein Ratner (2000)		√			√		B	B	50%
Howell et al. (2004)	√	√			√		B	B	63%
Carias and Ingram (2006)	-	√		√	√		B	B	63%
Ardila et al. (2011)	√	√		√	√	√	B	B	88%
Taliancich-Klinger et al. (2013)	√	√[b]		√	√	-	B	B	75%
Savio Lee et al. (2014)							B	B	25%
Byrd et al. (in Press)	√			√	√		B	B	63%
Total	56%	78%	22%	56%	78%	11%	100%	100%	

Note:

[a] Based on monolingual English speaker norms.

[b] Participant was not diagnosed with stuttering using English monolingual guidelines. Disfluencies produced by the confirmed bilingual SE speaker were compared to the available bilingual SE participant data in stuttering literature.

E, English; S, Spanish; B, Both

(-) Factor mentioned in study, but did not pertain to the participant.

DEPTH OF LANGUAGE AND DISFLUENCY PROFILES

An examination analyzing the depth of language and disfluency profiles across studies of bilingual SE speakers who stutter was conducted in this review. The main points addressed were (1) the number of different descriptors used for each factor within and across studies, and (2) the consistency of these descriptors across studies.

Fig. 1. Language Factors Provided for Bilingual Spanish English Participants who Stutter Across Studies

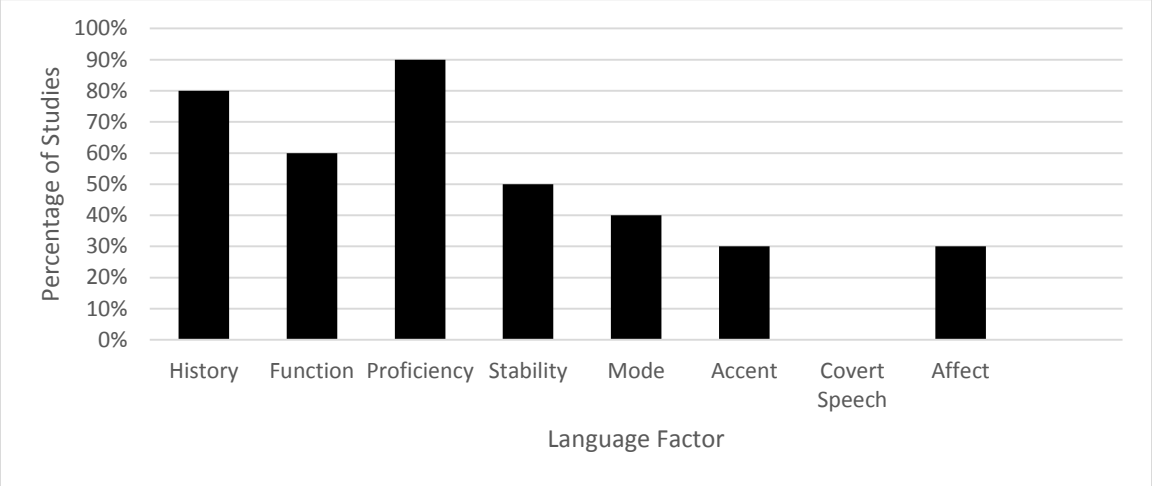

Fig. 2. Disfluency Factors Provided for Bilingual Spanish English Participants who Stutter Across Studies

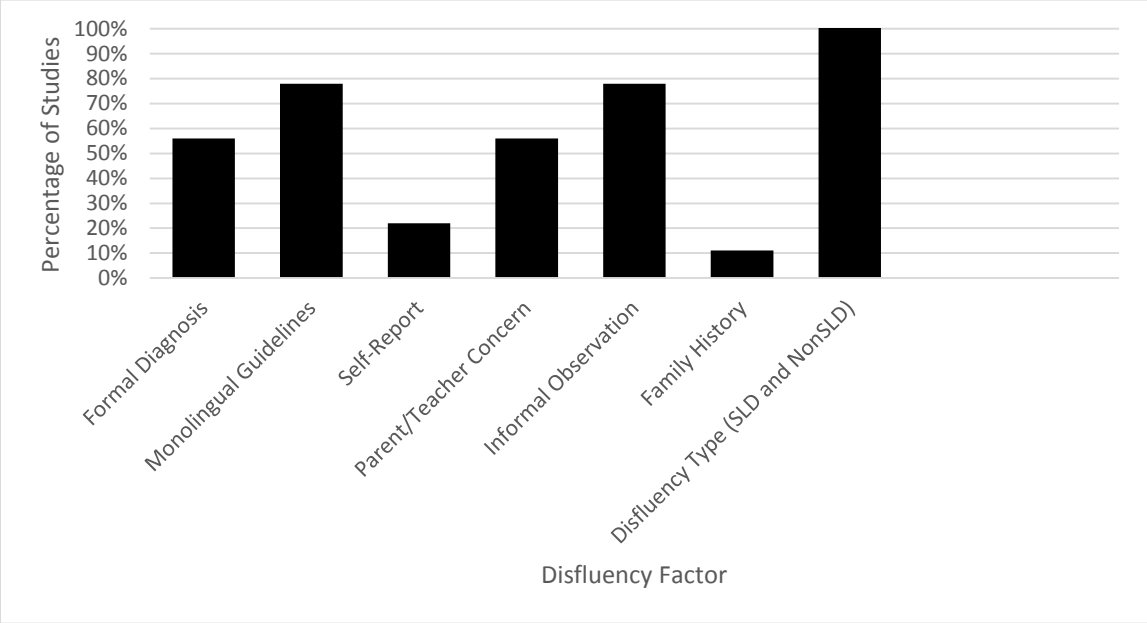

Table 7. Types of SLD and NonSLD Produced by Monolingual English Speakers Who Stutter

Stuttering Like Disfluencies (SLD)	***Example***
Repetitions of **whole** words	"She-she-she can't make it to dinner."
Repetitions of sounds	"S-s-sh-she can't make it to dinner."
Repetitions of syllable	"Sh-sh-she can't make it to dinner."
Sound Prolongations	"Shhhhhhhhe can't make it to dinner."
Blocks (inaudible sound prolongations)	"[Sh]------She can't make it to dinner."
Non-Stuttering Like Disfluencies (NonSLD)	***Example***
Repetitions of phrases	"She can't-she can't make it to dinner."
Interjections	"Uh-she can't make it to dinner."
Revisions	"He-she can't make it to dinner."

Table 8. Characteristics of Stuttering in Bilingual Speakers

Article	Stuttering Like Disfluencies				Other Characteristics			Total
	Sound Repetitions	Syllable Repetitions	Monosyllabic Word Repetition	Inaudible/Audible Sound Prolongations	Atypical Tension During Speech	Atypical Rhythm in Repetition	Presence of other Secondary Behaviors	
Dale (1977)	√	√			√			43%
Bernstein Ratner and Benitez (1985)	ND	ND	ND	ND				-
Cabrera and Bernstein Ratner (2000)	LD	LD	LD	LD				-
Howell et al. (2004)		√		√				29%
Carias and Ingram (2006)	√	√	√	√				57%
Ardila et al. (2011)	√	√	√	√				57%
Taliancich-Klinger et al. (2013)	√	√	√	√	√	√	√	100%
Savio Lee et al. (2014)				√			√	29%
Byrd et al. (in Press)	√	√	√	√				57%
Total	56%	67%	44%	67%	22%	11%	22%	

Note:
[ND] Information was not described in the study.
[LD] Limited data provided

DEFINING STUTTERING IN BILINGUAL SPANISH-ENGLISH PARTICIPANTS

Bilingual SE studies that have been completed thus far vary in the way stuttering is defined in their participants. Table 6 shows that 78% of the studies used monolingual English guidelines and informal observation to identify stuttering in their bilingual SE participants. 56% of the studies stated that their participants were formally diagnosed as a persons who stutter. Recall that the Byrd et al. (2015) article was not included in the analysis of characteristics of stuttering in bilingual speakers because they did not analyze the disfluent speech of bilingual children who stutter.

Dale (1977) explored the speech output of four SE adolescent males of Cuban descent who had not been formally diagnosed with stuttering but who also were not considered to be "typically fluent." The author reported that none of the participants presented with disfluencies when speaking English, but demonstrated disfluent speech such as hesitations, groping for words, and repeating sounds and syllables at the beginning of words only when they spoke Spanish. Furthermore, Dale (1977) suggested that the participants experienced these disfluencies due to environmental pressures from their Cuban community members to retain their native language, Spanish. The author also noted that the participants were disfluent when they had difficulty finding words in Spanish or felt embarrassment when they were disfluent in front of their parents.

Bernstein Ratner and Benitez (1985) presented the first published study of a bilingual SE speaker with confirmed stuttering. The participant was a 50-year-old SE bilingual male of Cuban descent. The authors stated that the participant was more disfluent overall in English than in Spanish with the number of disfluencies per utterances being nearly twice as much in English. The participant had more difficulty initiating sentences and clauses in Spanish than English, but when using noun phrases more disfluencies were produced in English than Spanish. Also, conjunctions and clause initial words produced more disfluencies twice as much in Spanish than English, but there were not a large foundation of disfluency in Spanish.

At an annual American Speech Language Hearing Association (ASHA) conference Cabrera and Bernstein Ratner (2000) presented a case report of a bilingual stuttering SE participant. The participant's overall degree of disfluencies in each

language was not reported according to Van Borsel, Maes, and Foulon (2001). The authors reported that the 5-year-old child was more disfluent when code-mixing between Spanish and English. The participant demonstrated higher proportions of disfluencies on reflexives in Spanish, and higher proportions on adjectives in English.

As cited in Taliancich-Klinger et al. (2013) article, researchers Howell et al. (2004) illustrated the spontaneous speech of a 11;9 year bilingual SE male with confirmed stuttering. Inconsistencies in patterns of disfluencies were compared to ways in which English monolingual speakers who stutter present with "stall" (silent and filled pauses, whole word repetitions, and repetitions of phrases) and "non-stall" (sound prolongations, part word repetitions, and breaks between syllables) speech behaviors. The participant produced more stuttering on function words than content words in English. In Spanish, he produced more stuttering on content words than on function words. The authors analyzed spontaneous conversational speech sample with the clinician and a monologue in Spanish and English for the amount of "stalls" and "non-stalls" present in each language. The child displayed more "non-stalls" in Spanish overall than in English, characterizing his stuttering as more severe in Spanish than in English.

Carias and Ingram (2006) analyzed the disfluencies of children who were not formally diagnosed with stuttering, but likely presented with the disorder. They examined spontaneous language samples produced in both languages by four SE children between the ages of 4 and 10 years old. All of the participants showed a higher proportion of disfluencies in the language in which they had the highest mean length of utterance (MLU). The authors interpreted the higher MLU as a sign of proficiency in that particular

language (Spanish or English) and generated the inference that with increased linguistic output, there is increased disfluency. The authors also stated that although these participants were not confirmed stutterers, the occurrence of stuttering ranged from 37% to 72%, percentages higher than monolingual speakers who stutter.

Ardila et al. (2011) observed the speech characteristics of a 27-year-old bilingual SE speaking male of Cuban descent who was formally diagnosed with stuttering. The subject's mother reported the onset of stuttering around 6 – 7 years of age. The participant also had a family history of stuttering on his paternal side of the family.

Ardila and colleagues (2011) analyzed the differences of his stuttering patterns in both English and Spanish through picture description and conversational samples. The authors described the following disfluencies as stuttering like: phonemic repetitions, phonemic prolongations, part word repetitions, and whole word repetitions. The participant produced significantly more stuttering on function words than content words overall in English than Spanish. The researchers discovered that he produced significantly more stuttering like disfluencies (SLD) in Spanish than English on adjectives, adverbs, and conjunctions. The authors determined that the participant stuttered more in his non-dominant language, Spanish, because of the linguistic idiosyncrasies among the two languages. Ardila et al. (2011) also stated that when comparing stuttering in two languages, it is common to find both similarities in the stuttering pattern as well as differences due to linguistic variances between English and Spanish and an individual's mastery of each language.

Taliancich-Klinger and colleagues (2013) examined the disfluent speech behaviors of a 6-year 1-month-old bilingual SE speaking female with confirmed stuttering. The participant was previously diagnosed with stuttering at 3 years 6 months by her school appointed monolingual speech therapist. The authors analyzed narrative and play-based conversational samples in English and Spanish for presence of stuttering, percentage of stuttered syllables, and types of disfluencies. Similarities and differences in speech disfluencies produced in English and Spanish were compared based on existing bilingual SE statistics. Overall, the participant was more disfluent in English across both her narrative and her conversational output. The bilingual SE speaker produced more stuttering-like disfluencies in her Spanish narrative sample than in English. The participant also produced more nonstuttering-like disfluencies in her English narrative sample than in her Spanish narrative sample.

Savio Lee, Robb, Ormond, and Blomgren (2014) evaluated the ability of English-speaking speech-language pathologists (SLPs) in assessing stuttering behaviors in two bilingual Spanish-English adults who stutter (AWS). The study focused primarily on the monolingual English SLPs capability to recognize and judge the frequency, severity, type, duration, and physical concomitants of stuttering in both languages of the two AWS. Video-recorded speech samples from the two Spanish-English bilingual AWS functioned as the stimulus material. Each AWS produced two readings of the first paragraph of *The Rainbow Passage* (Fairbanks, 1960), in English and Spanish. Both AWS presented with inaudible and audible sound prolongations and revisions. The AWS also presented with secondary behaviors along with their disfluent speech.

Byrd, Watson, Bedore, and Mullis (in press) investigated the accuracy of bilingual Spanish-English SLPs during the identification of stuttering in the speech samples of two bilingual SE children. The stimulus material consisted of audio-recorded narrative productions that were produced in English and Spanish by two bilingual SE children, one with confirmed stuttering disorder and the other being typically fluent. The bilingual SE speaker with confirmed stuttering disorder was a 6 year, 1 month old female diagnosed with stuttering by a school based bilingual SLP prior to the study. Also, there was documentation of parent and teacher concern that the child was indeed a child who stutters (CWS). To confirm parent, teacher, and former evaluating SLP claims, a certified/licensed bilingual SLP specializing in bilingualism and stuttering confirmed the child's diagnosis of stuttering after observation and related analyses of the child's speech. The control was considered to be a typically fluent child due to guidelines created by the authors.

Byrd and colleagues (in press) reported that twelve out of the 14 bilingual SLP participants falsely or incorrectly identified the bilingual child who was confirmed as a typically fluent speaker as a child who stutters. Ten of the 14 SLPs correctly identified the bilingual child with a confirmed stuttering disorder as a CWS. The researchers concluded that these findings suggest that more information is needed regarding the types and frequencies of disfluencies that differentiate bilinguals who stutter from typically fluent bilinguals. They also stated that it appears that bilingual speakers may be at distinct risk for false positive identification of stuttering due to the misidentification of stuttering diagnoses from practicing SLPs.

DEFINING BILINGUALISM IN BILINGUAL SPANISH-ENGLISH PARTICIPANTS

The significant information concerning language proficiency and language input and output of SE speakers who stutter has been shown to be inconsistent and/or lacking across studies (Coalson et al., 2013). Table 5 reveals studies that comprise information relating to proficiency (90%), history (80%), and function (60%). The remaining language factors (stability, mode, accent, covert speech, and accent) only account for 0% – 50% of data incorporated in studies.

Dale (1977) believed that stuttering differs in balanced bilingual speakers. The author claimed that the four SE male participants presented with SLD in Spanish because of their loss of Spanish proficiency as they acquired English. Dale also described the children as being proficient in both Spanish and English.

Bernstein Ratner and Benitez (1985) suggested stuttering varies between balanced bilingual speakers. The SE male participant with confirmed stuttering reported that he felt equally fluent in both English and Spanish. The participant reported that he had spoken Spanish and English since learning to speak and spoke both languages almost equally.

As cited in Taliancich-Klinger and colleagues (2013) article, researchers Cabrera and Bernstein Ratner (2000) reported that the participant produced disfluencies when code-mixing between English and Spanish. No further information regarding bilingualism was mentioned in Taliancich-Klinger et al. (2013) review of the study.

As mentioned in Taliancich-Klinger et al. (2013) article, researchers Howell et al. (2004) characterize their bilingual SE speaker's level of proficiency as more fluent in Spanish than English. Howell and colleagues (2004) implied that stuttering increases in

the more dominant language. No further information regarding bilingualism was mentioned in Taliancich-Klinger et al. (2013) review of the study.

Carias and Ingram (2006) examined the disfluencies of children who presented with signs of having a fluency disorder. Child 1 had been learning Spanish and English since age 2 and had high vocabulary in both languages. The first language of child 2 was Spanish. The first language of child 3 was English, and she only spoke Spanish to a few other family members. Child 4 learned English and Spanish simultaneously. Results specified that the children all showed a higher percentage of disfluencies in the language they had the highest average length of utterance. The authors believed that the higher MLU, in either Spanish or English, was a sign of proficiency. Carias and Ingram (2006) created the argument that with increased linguistic output, there is an increase of disfluencies, thus concluding that stuttering increases in the more dominant language.

Ardila and colleagues (2011) investigated the speech characteristics of an English dominant bilingual SE speaking male who was described as reportedly having only 10% Spanish language output. English was the dominant language spoken in his home, but he was exposed to Spanish at least 8 hours per day until age 5 while with his grandparents. The participant received majority of his schooling in English. The researchers recognized that the participant stuttered more in his non-dominant language, Spanish, because of the *language differences* among the two languages. Ardila et al. (2011) inferred that language proficiency assists in deciphering the position Spanish and English play amongst each other in regards to language complexity.

Taliancich-Klinger and colleagues (2013) gathered information about the participant's language experience and demographic information through questionnaires. The parent questionnaire asked two types of questions: 1. Child's language use on a year-to-year basis, and 2. Languages spoken in the home up to year one of age and every year up to his current age of 6 year – 1 month. The participant's mother reported that she was first exposed to English at age 1, and shared her hourly language input and output. Per parent questionnaire, the participant was determined to hear and use English 66% of the time. The language questionnaire data indicated more English exposure, yet formal testing measures indicated stronger performance in Spanish.

Savio Lee and colleagues (2014) revealed that AWS1 acquired Spanish as his first language (L1) and later acquired English at age 5 as his second language (L2). He was described as a fluent English speaker, but with a Spanish accent. AWS2 acquired Spanish as L1 and later acquired English as L2 around 11 years of age. She was labeled as an English speaker with a strong Spanish accent. Both individuals reported on a 5-point self-rating scale (*very low*, *low*, *moderate*, *high*, *very high*) that their proficiency in spoken English to be between *moderate* (AWS1) and *very high* (AWS2).

Byrd and colleagues (2015) analyzed the disfluent speech of 18 fluent bilingual SE children. To establish the children's level of exposure to Spanish and English, parents and teachers of the participants completed questionnaires about the child's patterns of language input and output (Gutiérrez-Clellen & Kreiter, 2003; Restrepo, 1998). Parents rated their child's current levels of language input and output on an hour-by-hour basis, and provided information about their children's history of exposure to both languages at

home and school from birth. Teachers reported information on the children's use of language in the classroom. The participants in the study had at least 20% input and output in each language when they were in pre-kindergarten. By kindergarten, the children's use of English and Spanish spanned the full range from predominant Spanish use to predominant English use.

The children's level of language ability was assessed through the Bilingual English Spanish Assessment (BESA) (Peña, Gutiérrez-Clellen, Iglesias, Goldstein, & Bedore, 2014), in which all the children performed within normal limits, indicating that they presented with typically developing language skills. Byrd and colleagues (2015) determined the children's level of exposure and level of ability in Spanish and English and divided them into three groups separated by dominance. Six of these children were Spanish dominant, six children were balanced bilinguals, and six children were English dominant. The study determined that dominance within a language may not be as critical to disfluency as the nature of the language being spoken (Byrd et al., 2015).

Byrd and colleagues (in press) focused predominantly on the bilingual Spanish-English SLPs ability to accurately identify stuttering in the speech samples of two bilingual SE speaking children (one who stutters and one who is typically fluent). The BESA was administered to assess language ability. Language dominance was evaluated using a questionnaire in which the parents report the Spanish and English input and output their child receives and produces in various settings during each hour of the day, along with a description of the specific activity. The child who stutters was 66% English dominant based on the parent questionnaire.

Byrd et al. (in press) matched the typically fluent bilingual SE speaker for age, gender, language dominance, and language abilities in a database of bilingual SE child narrative tell and retell language samples developed in the Human Abilities in Bilingual Language Acquisition (HABLA) Lab by the third author, Dr. Lisa M. Bedore. The control was a female who classified as being 66% English dominant like the CWS as well as scored 1 SD above the mean on the BESA (Peña et al., 2014).

Discussion

To review, our understanding of the manifestation of stuttering in bilingual speakers is often limited to case studies. These data are valuable, but undermined by the inconsistency and inefficiency in which participants are described. An eight-factor framework to describe bilingual participants was derived from Grosjean's (2004) criteria and created by Coalson et al. (2013) using information available in established language profile questionnaires. A similar framework to describe the commonly used factors in determining disfluencies in bilingual participants was derived from Byrd et al. (2015) study and information available in existing bilingual SE research. Both frameworks were applied to a systematic review of research that included bilingual SE participants who stutter. Overall, descriptions of bilinguals who stutter include less information compared to Grosjean's suggested criteria and information available in bilingual measurement tools. Proficiency, history, and function were the most commonly reported language factors. Other language factors (i.e. stability, mode, accent, affect, and covert speech) were infrequently reported. Commonly stated disfluency profile factors included disfluency types (SLD and NonSLD), informal observation, and comparison to monolingual guidelines. Other disfluency factors (i.e. formal diagnosis, parent/teacher concerns, self-report, and family history of stuttering) were infrequently reported. The descriptors used to define each factor varied significantly.

Nine of the ten studies stated that their participants were bilingual and dominant in one language or equally proficient in both languages. However, only a few explained how they identified the participants as proficient in either languages. Five out of nine

studies stated that their participants were "formally diagnosed" as persons who stutter, but did not include which assessments were used or mention a diagnostic report. The following paragraphs will discuss the results of how bilingualism and stuttering were assessed in each study.

Dale (1977) study classified the participants as individuals who stutter not by formal diagnosis, but based on the participants self-report, parent concern, and stating that the participants presented with stuttering-like disfluencies based on monolingual English norms. Dale termed the speech behaviors produced by the SE speakers as "typical" disfluencies and attributed the production to the participants' loss of Spanish proficiency as they learned English. In reference to bilingualism, the participants were described as proficient in English and Spanish; however the study did not mention how proficiency of each language was attained nor did they provide detailed information regarding the levels of language input and output the participants were exposed to in both languages. Dale's study provides insight regarding how bilingualism may compromise speech fluency by suggesting that stuttering differs in balanced bilingual speakers, however her inference is limited by the manner in which stuttering and bilingualism are defined.

Bernstein Ratner and Benitez (1985) provided the first study with a bilingual SE speaker with confirmed stuttering, but established his diagnosis as a stutterer through monolingual English norms, informal observation, and self-report. The authors analyzed spontaneous speech samples in each language, but the specific types of disfluencies produced were not discussed in great detail nor was information given as to whether the

disfluencies were considered to be stuttering or non-stuttering like. The participant reported that he felt equally fluent in Spanish and English, yet information concerning the input and output of both of his languages was not provided in the study. The study mentioned three primary factors (history, function, and proficiency) that typically provides informative bilingualism data, however the detail of each of those factors are minimally described. Thus, the findings reported by Bernstein Ratner and Benitez (1985) are limited by the way bilingualism and stuttering were defined due to the lack of detail describing language input and output as well as the limited description of the disfluencies the participant produced.

The Cabrera and Bernstein Ratner (2000) case study is limited to the authors reporting that the 5-year-old child was more disfluent when code-mixing between Spanish and English. The authors data provide further support to the concept that language hesitation can lead to increased disfluency, which supports Taliancich-Klinger et al. (2013) position that the disfluent speech of bilinguals is unique to bilingualism. According to Taliancich-Klinger et al. (2013), in non-stuttering bilingual children who produce typical SLDs such as, phrase repetitions or interjections, language hesitation could be related to unfamiliarity with terminology or difficult linguistic structures. That is, the individual knows only one language; therefore, the demand of operating more than one language and the following influence on fluency is not a intervening component in the fluency of the person's output. However, there was limited information provided but Cabrera and Bernstein Ratner about the participant's language background and also with regard to the participants stuttering. The authors shared that the participant produced

disfluencies on reflexives and adjectives, but there was no description on the types of disfluencies (SLD or NonSLD) produced by the participant. Cabrera and Bernstein Ratner (2000) study was restricted in the manner bilingualism and stuttering were defined.

Howell et al. (2004) compared the variances in patterns of disfluencies of the participant to English monolingual norms. Details regarding the child's level of bilingual proficiency were limited to that he was more fluent in Spanish than English. In reference to bilingualism, the study only qualified for one factor (language proficiency) out of the eight. Howell and colleagues (2004) stated that the bilingual SE speaker was a child who stutters, but did not describe how they formally assessed and diagnosed the participant with stuttering. The authors mentioned that the participant produced specific types of SLD and NonSLD in Spanish and English, then compared those same disfluencies to monolingual English children who stutter. Howell et al.'s (2004) findings are limited in that bilingualism and stuttering was not clearly defined in the participant.

Carias and Ingram (2006) stated that the participants in their study were not formally diagnosed with stuttering, but likely presented with the disorder. The children were identified with stuttering based on informal observations and parent concerns about their fluency. Informal observations and parent concerns can be beneficial information, however they are subjective measures based on opinion, not standardized data. Carias and Ingram (2006) also indicated that although these participants were not confirmed stutterers, the percentages of stuttering that occurred amongst the bilingual SE children were significantly higher than the diagnostic guidelines for stuttering in monolingual

English children. The high percentage of disfluencies produced by the participants only suggests that these speakers were highly disfluent compared to monolingual English norms. The authors did not indicate the variances in the languages or other secondary characteristics the participants presented with while exhibiting stuttering like disfluencies. This study was limited by the method of how stuttering was assessed because of the partial information used to identify the children as stutterers instead of using formal measurements. However, bilingualism was adequately defined due to the inclusion of the three most frequent language profile factors (history, proficiency, and function) presenting significant information about the participants language experience.

Ardila et al. (2011) was one of the first studies to analyze the disfluent speech of a participant who was formally diagnosed as a person who stutters. Although only 38% of the language profile factors (history, function, and proficiency) were used to define bilingualism, those three factors generated valuable information in understanding the language background of the bilingual SE speaker. The authors used 88% of the criteria used to define stuttering, which included formal diagnosis, parent concern, informal observation, family history of stuttering, and a description of the disfluencies the participant exhibited. The authors explicitly shared the participant's past reports regarding fluency and administered formal assessments to confirm his diagnosis as a stutterer was accurate. The informal conversation provided in each language revealed the various disfluencies the participant produced. Ardila et al. (2011) determined that disfluencies occur in bilingual SE speakers because of linguistic differences existing between Spanish and English. The conclusion is valid due to the study accurately

defining stuttering and including language factors that yielded pertinent information regarding bilingualism.

Taliancich-Klinger and colleagues (2013) observed the disfluent speech of a child who was formally diagnosed as a stutterer. The authors addressed all aspects for defining both bilingualism and stuttering in the study. Bilingualism was targeted through the detailed description of the language profile factors, except for one supplemental criteria (covert speech) that was not included in Taliancich-Klinger et al. (2013) study. In reference to stuttering, a thorough description on how the participant was diagnosed was explained, including informal observation, parent and teacher concerns, and the rejection of family history of stuttering. The study described the presence of stuttering, percentage of stuttered syllables, and types of disfluencies in detail. The disfluencies produced by the bilingual SE speaker were compared to the available bilingual SE participant data in stuttering literature. The interpretation of the researchers is valid due to the study accurately defining stuttering and comprising a comprehensive definition of bilingualism in the participant.

Savio Lee and colleagues (2014) used two bilingual SE adults who stutter as subjects when evaluating the ability of SLPs to identify stuttering behaviors. The study provided limited information about bilingualism and stuttering in the bilingual SE participants. Bilingualism was defined by 50% of the language factors (history, proficiency, stability, accent), two of which were the most frequent factors (history and proficiency) amongst studies. Conversely, more comprehensive information needed to be incorporated to recognize the language background of the AWS. The authors never

explicitly said that the two subjects were formally diagnosed, but they did mention the types of disfluencies they produced. The authors also mentioned that the AWS had a presence of secondary behaviors (distracting sounds, facial grimaces, head movements, and movements of the extremities) This study was limited by the method of how stuttering and bilingualism was assessed due to the restricted information used to classify the adults who stutter.

Byrd and colleagues (2015) provide beneficial information regarding the disfluent speech of typically fluent bilingual SE speakers. Bilingualism was targeted through the detailed description of the language profile factors identified in the study. Although Byrd et al. (2015) did not analyze the speech of bilingual SE CWS, the study presented suggestions that could be implemented for future studies. An analysis of the disfluent speech of fluent bilingual speakers can assist in identifying the characteristics of disfluent speech in bilingual speakers who stutter by eliminating common disfluency features associated with fluent bilingual speakers. For example, 88% of fluent bilingual SE speakers produced SLD word repetitions in both Spanish and English, and 67% produced sound repetitions in either Spanish or English. This study revealed that using monolingual English guidelines (monosyllabic word repetitions and sound repetitions are indicative of stuttering) is misleading for identifying bilingual speakers who stutter. None of the participants produced either inaudible or audible sound prolongations. Byrd et al. (2015) also found that inaudible and audible sound prolongations may be suggestive of stuttering in bilingual speakers who stutter due to the fluent bilingual speakers not producing any in their study. The suggestions formulated within the study are valid due

to the researchers encompassing a comprehensive definition of bilingualism in the participants.

Byrd and colleagues (in press) reviewed the accuracy of bilingual Spanish-English SLPs identification of stuttering in two bilingual SE children. The study compared the types of disfluencies that were indicative of stuttering in monolingual English speakers who stutter to the disfluencies presented by bilingual SE children who do and do not stutter. The description of stuttering in the confirmed bilingual SE CWS was based on formal diagnosis, parent/teacher concerns, and informal observation. The bilingual SE child who stutters presented with disfluencies such as, sound, syllable, and word repetitions as well as inaudible sound prolongations as did the typically fluent bilingual SE child. The study did an exceptional job defining stuttering by comparing the disfluent speech of a typically fluent bilingual SE child against monolingual English norms and the bilingual SE CWS. As for the definition of bilingualism in the study, Byrd et al. (in press) adequately demonstrated each child's language background by using 63% of the language profile factors (history, function, proficiency, stability, and mode). The conclusions proposed within the study are correct because they appropriately defined bilingualism and stuttering in the bilingual SE children.

FUTURE CONSIDERATIONS

In summary, some researchers believe that language abilities can affect the amount of disfluencies a bilingual speaker produces in a particular language. It is vital to understand what disfluencies are produced in both languages in order to determine if the

speaker actually presents with stuttering like disfluencies or non-stuttering like disfluencies in either language. The imbalanced comparison between the two languages is the potential reason for an increase in the amount of disfluencies produced by bilingual speakers. The focus of fluency in bilingual Spanish-English speakers should not solely be on language ability between two languages. The emphasis should consider both the overall language ability and characteristics of disfluencies produced by the bilingual SE participants in future studies.

Many of the studies did not consider other language factors (mode, accent, covert speech, and affect) and disfluency profile factors (self-report as a stutter, family history, atypical tension, and other secondary behaviors) when assessing the bilingual speakers. The disfluency factors could assist in identifying if the bilingual speaker is a true stutterer, instead of solely depending on the stuttering-like disfluencies criteria established by monolingual English children who stutter. Also, knowing the language profile factors gives a comprehensive overview of bilingualism in each participant. Those language factors target every aspect of what bilingual speakers may encounter while speaking two languages simultaneously. Although the current standard for diagnosing and identifying bilingual SE speakers who stutter are based on monolingual norms and the definition of bilingualism is inconsistent across studies, future research should consider other characteristics, suggested by Byrd et al. (2015) and Coalson et al. (2013) to resolve the over diagnosis and misidentification of Spanish-English speakers.

CLINICAL APPLICATION

It is evident that in some point in a speech-language pathologist's (SLP) career, they will encounter at least one SE bilingual speaker who stutters. If an SLP cannot speak the language being assessed, that creates a greater risk for false positives in the identification of stuttering in bilingual adults and children (Byrd, Bedore, & Ramos, 2015; Byrd, Watson, Bedore, & Mullis, in press; Van Borsel & Pereira, 2005). However, if a clinician is not fluent in Spanish, can they accurately assess and diagnose the presence of stuttering, particularly if the child is not a stutterer? Shenker (2011) noted that the lack of consistency across language experiences and proficiency hinders the comparison of multilingual participants who stutter across studies. In order to accurately recognize the atypical speech behavior in bilingual speakers, there is a critical need for normative data on the typical disfluent speech behaviors bilinguals exhibit (Byrd, Bedore, & Ramos, 2015; Byrd, Watson, Bedore, & Mullis, in press).

Conclusion

The results from this study indicate that the descriptions of bilingual SE participants are limited relative to the recommended Coalson et al. (2013) framework and the present study's proposed disfluency framework. Although research on bilingual speakers is progressively emerging, there is still a need for additional investigation regarding the disfluent speech of bilingual Spanish-English speakers and across those future studies researchers need to be more careful in their definition of bilingualism and in their identification of stuttering. The studies completed thus far should be interpreted with caution given to the varying definition of bilingualism and the comparing of disfluent speech of bilingual SE speakers to monolingual English norms. Future research should include information in which bilingualism has been adequately defined and the behaviors of indicative stuttering are not limited to monolingual English guidelines.

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