

## Speech-Language Pathologists' Perception of Bilingualism as a Risk Factor for Stuttering

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### Abstract

Researchers have suggested that being bilingual may increase the likelihood of development of stuttering. This suggestion was recently discounted by the data that indicate bilingual children who do not stutter produce an atypically high number of speech disfluencies. Thus, bilingual children are not at increased risk for development of stuttering, but they do appear to be at increased risk for false positive diagnosis of stuttering. This risk may be further increased by persisting public misperception that being bilingual increases the likelihood that the child will develop stuttering. The present study explored whether speech-language pathologists (SLPs) inaccurately classify bilingualism as a risk factor for the onset and persistence of stuttering and what factors uniquely influence their perception of bilingualism as a risk factor. Participants included 207 speech-language pathologists recruited through the American Speech-Language-Hearing Association Membership Directory. Participants completed web-based surveys addressing their generalized knowledge of perceived risk factors associated with stuttering including bilingualism. Preliminary results indicate that some, but not all speech-language pathologists view bilingualism as a risk factor. Results further indicate that clinical experiences and personal perspectives significantly contribute to this misperception.

**Keywords:** Stuttering; Bilingualism; Risk factor; Persistence

### Introduction

Researchers have identified factors that predispose children to be at risk for stuttering onset and persistence. Specifically, the age of onset for stuttering is among the most prevalent risk factors for persistent stuttering [1]. Empirical evidence also suggests that males are at a greater risk for persistent stuttering. Family history of stuttering also appears to increase the likelihood of development. More recently, researchers have suggested that being bilingual may increase the likelihood of development of stuttering [2]. This suggestion has been discounted by the data that indicate bilingual children who do not stutter produce an atypically high number of speech disfluencies [3]. Thus, bilingual children are not at increased risk for development of stuttering, but they do appear to be at increased risk for false positive diagnosis of stuttering [3]. Nevertheless, it is possible that clinicians may presently mis-perceive stuttering as a risk factor. If this misperception persists, then bilingual children who do not stutter will continue to be at increased risk for false positive diagnosis of stuttering [4].

Past research [2,5] has also suggested a causal link between bilingualism and stuttering, but these findings are compromised by significant limitations in the respective studies' design. Travis et al. [5] investigated the relationship between bilingualism and stuttering by surveying over 4,000 children between the ages of 4 and 17 years. Travis and colleagues [5] concluded that there was an established link between bilingualism and the incidence of stuttering. They [5] further recommended that "the somewhat lower average I.Q of bilinguals should be considered in evaluating the significance of bilingualism as

such in relation to stuttering". However, the evidence to support their interpretations is lacking. Specifically, the study employed individuals who were not speech-language pathologists (SLPs; i.e. personnel directors from oil refineries, priests, merchants) to classify bilingual participants as children who did and did not stutter. A secondary concern was that this was the only method of determining the presence of stuttering [6]. These methodological concerns negate any potential interpretation of support for bilingualism as risk factor for stuttering.

Howell and colleagues [2] recently examined the referrals to a specialized fluency clinic of 317 children who stutter (ages 8 to 10 yrs) to determine if bilingualism posed an increased risk to the development and/or persistence of stuttering. Within this pool of 317 children, they identified 15 bilingual children who stutter who had not been exposed to English until they entered school at age 5. They also identified 23 bilingual children who stutter who used both their native language and English in the home prior to entering school (N=23). Howell et al. [2] compared the development, persistence, and recovery rates of these groups of children to a cohort of monolingual children who stutter (exact number of monolingual participants not provided). They reported that proportionally more bilingual children are at risk for development and persistence of stuttering [2]. Howell and colleagues also stated that the risk is greater for children who are exposed to two languages prior to entering school as compared to children who are exposed only to one language prior to school entry. Upon consideration of these findings, they concluded, "...if a child uses a language other than English in the home, deferring the time when they learn English reduces the chance of starting to stutter and aids the chances of recovery later in childhood" [2]. The efforts of Howell et al. are to be highly commended as there is an established

critical need for these bilingual data. Yet, as Packman and colleagues stated in response to Howell et al.'s suggestion, bilingualism is a gift; thus, any recommendation that would lead a parent to defer their child's exposure to another language must be supported by significant evidence [7]. Therefore, this recommendation by Howell et al. needs to be carefully considered with respect to at least a few critical confounding variables (for discussion of additional confounds see Packman, et al. [7]). Such consideration is of particular importance as parents of children who stutter and/or clinicians who read their article may choose to limit exposure to another language until what some have argued to be the critical time period for second language learning has passed [8].

First, the tests and cutpoints used to characterize stuttering for the bilingual children in the Howell et al. study were drawn from norms for monolingual English speakers; authors reported use of the Stuttering Severity Instrument-3 norms [9]. Another critical consideration is that Howell and colleagues [2] completed their speech disfluency analyses in English samples only. The language sample of a monolingual English speaker cannot be considered equivalent to the English output of a bilingual speaker whose native and/or second language is English. In fact, bilinguals who speak a variety of language pairs have been shown to produce more mazes in their second language than they do in their native language [10-13]. They also produce higher rates of mazes than monolinguals [11,13]. Mazes refer to the number of interjections, partial words, and repetitions contained in a communicative attempt [14]. Mazes occur in the absence of other qualitative features of stuttering-like behaviors such as tension and duration. Howell et al. did not identify the specific types of speech disfluencies produced, leaving open the possibility that the types of speech disfluencies that are considered to be mazes and those that are considered to be stuttering-like were not carefully disentangled in the output of those bilingual children.

The significant potential for this overlap between mazes and stuttering-like disfluencies is further highlighted in a study by Bedore, et al. [15]. They explored maze production both in terms of type and amount in bilingual SE children (N=22; mean age=68.48 mos) as compared to functionally monolingual children (N=22 English speaking, mean age=69.86 mos; N=22 Spanish speaking, mean age=69.18 mos) [15]. The bilingual children produced repetitions more frequently than any other maze type. They also produced higher rates of repetitions than the monolinguals. These repetitions included repetitions of phrases, multisyllabic words, and, of particular note to stuttering, repetitions of sounds, syllables, and monosyllabic words. Repetitions of phrases are considered to be nonstuttering-like, and controversy exists regarding whether monosyllabic word repetitions should be categorized as stuttering-like [16-20]. However, repetitions of parts of words, such as sounds and syllables, are commonly considered to be indicative of stuttering (see Yairi & Seery, 2011, for review [21]). Byrd, Bedore and Ramos [3] recently suggested that this atypically high rate of production of sound and syllable repetitions which appears to comprise the majority of the mazes produced by bilingual SE speakers contributes to this potential mis-perception of an increased risk of stuttering in this population. They further confirmed this suggestion by demonstrating that SLPs do misidentify stuttering in bilingual Spanish-English (SE) children who in fact, do not stutter [4].

The findings by Byrd and colleagues coupled with data from Artiles, Ruedo, Salazar, and Higareda [22] indicating a risk for over-identification of disorders in bilingual children suggest a need to promote awareness and education of bilingualism in communication

disorders, particularly in the area of developmental stuttering. The potential for over-identification of stuttering in bilingual populations is confounded by misguided suggestions that bilingualism is an inherent risk factor for the development of stuttering. Preconceived biases of bilingualism as a risk factor for the development or maintenance of stuttering can impede a clinician's ability to accurately make decisions regarding differential diagnosis of bilingual and multilingual children. Clinical decisions that are not based on thorough knowledge of the existing literature can even undermine the American Speech-Language-Hearing Association's Code of Ethics [23].

The primary purpose of the present study was to investigate practicing clinicians' perception of bilingualism as a risk factor for the development and persistence of stuttering. A secondary purpose of this study was to assess the factors that contribute to one's knowledge regarding the relationship between bilingualism and stuttering. Specific factors included: differences in educational experience, differences in clinical experience, differences in the amount of coursework specific to stuttering, and differences in the direct diagnostic and therapy contact hours for children and adults who stutter. The present study addressed the following questions:

1. Do SLPs misperceive bilingualism as risk factor for the onset and development of stuttering?
2. What factors, if any, distinguish SLPs who misperceive stuttering as a risk factor from those who do not?

## Method

### Survey development

A survey was developed to assess whether SLPs perceive bilingualism as a risk factor for development and persistence of stuttering. To provide foils, the survey included the identification of other known risk factors to the onset and persistence of stuttering. The survey was piloted with 3 certified SLPs. These SLPs provided feedback regarding the clarity and overall flow of the questions. As a result, the following revisions were made: (1) addition of Board Certification in Fluency and Fluency Disorders as an example of fluency specialization, (2) revision of the order of course-work related questions, and (3) provision of further clarification to unclear questions.

**Final survey:** The final survey was comprised of two parts: Part I (28 multiple choice and Likert scale items) assessed participants' generalized knowledge of other well-known risk factors associated with stuttering (e.g., familial history, gender, and age of onset); Part II (9 multiple choice and open-ended items) evaluated the level of education and clinical experience of participants with assessment and treatment of bilingual children who stutter. Participants also provided demographic information including experience with bilingual clients, fluency clients, bilingual fluency clients and any related certifications as an SLP (see Appendix A for survey questions).

### Participants

Participants were recruited nationwide using email addresses obtained from the publicly accessible American Speech-Language-Hearing Association (ASHA) ProFind Member Directory<sup>1</sup> which includes SLPs and audiologists who are or were board certified through this association. Participants were provided with a vague purpose of the study, with no information concerning bilingualism as a risk factor to avoid providing any source of bias prior to completing the

questionnaire. From the directory, SLPs (i.e., practicing or retired clinicians and professors) were recruited and contacted in two phases.

**Recruitment-Phase 1:** For the first phase of recruitment, the first author attempted to email 13,690 SLPs from the ASHA directory through bulk emails via *Google Mail*. Each bulk email included the email addresses in the "Blind Carbon Copy" section in order to protect dissemination of personal contact information. The electronic message contained an Informed Consent introduction approved by The University of Texas at Austin Institutional Review Board, a cover letter as an attachment to briefly describe the study, and a link to access the web-based survey administered via *Qualtrics*. *Qualtrics* is a commonly used method to collect survey-based research. Given bulk email restrictions imposed by *Google Mail*, it is impossible to determine how many emails were actually received through the *Google Mail* interface and how many were sent to spam filters or rejected entirely. This unforeseen methodological challenge coupled with an initial low participant response rate of 74, motivated the second recruitment phase.

**Recruitment-Phase 2:** The second phase of the recruitment was conducted entirely through *Qualtrics*. Specifically, the survey was emailed to 11,556 number of participants directly from *Qualtrics* (instead of *Google Mail*) using the same email content used in Phase 1. *Qualtrics* identifies the number of participants that received an email, bypasses spam filters, and records the number of invalid emails. Given the two phases of recruitment, it is likely that some individuals were contacted twice. However, *Qualtrics* only allows the individual to complete the survey once.

## Participants

Of the 11556 total emails sent through the *Qualtrics*, 1715 were invalid. Of the remaining 9841 emails, 2450 were opened. Of the 2450 opened emails, 259 reportedly began the *Qualtrics* survey and 207 were completed. *Qualtrics* data obtained from a total of 207 participants were included in this study. The low retention rate is explored in the discussion of this study. Completed surveys were saved in a password-protected *Qualtrics* portal file. Survey results were anonymized to protect participant privacy.

## Demographics

Of the 207 completed surveys, participants responded from at least 30 different states across the United States. Of the participants, 89% reported having master's degree (N=185) and the remaining (N=22) reported having a doctoral degree. As expected, the number of respondents who classified themselves as bilingual SLPs was relatively low (N=27). Eighty two percent (N=171) of the participants have provided treatment to a bilingual child for a communication disorder. However, most of the participants (57%; N=118) reported they have not provided treatment to a bilingual child for stuttering.

## Results

To review, the purpose of this study was twofold. First, we wanted to determine if SLPs misperceive bilingualism as a risk factor for the onset and development of stuttering. Second, among those SLPs we identify to misperceive bilingualism as a risk factor, we wanted to determine the factors that potentially influence their misperception.

1. Do SLPs misperceive bilingualism as risk factor for the onset and development of stuttering?

To address the primary purpose of this study, of the 207 respondents, 79.71% (N=165) indicated that bilingualism was not a risk factor for stuttering. The remaining 20.28% (N=42) reported that bilingualism was a risk factor for either the onset of stuttering, the persistence of stuttering, or both. Participants surveyed were asked to indicate on a Likert scale the degree to which they perceived bilingualism to be a risk factor. Of the 207 respondents, 22% (N=46) of participants reported that they 'strongly disagree', 33.8% (N=70) of participants reported that they 'disagree', 28.9% (N=66) of participants reported that they 'neither agree nor disagree', and 13.5% (N=28) of participants 'agree' that bilingualism is a risk factor for the onset and/or persistence of stuttering.

2. What factors, if any, distinguish SLPs who misperceive stuttering as a risk factor from those who do not?

To address the secondary purpose of determining what influences contribute to the misperception of bilingualism as a risk factor, further examination was conducted on the 42 participants who reported bilingualism as a risk factor as compared to the 165 who did not.

In comparison to those who did not report bilingualism as a risk factor, there were no demographic differences in age and gender. However, for those who have taken a graduate course in stuttering, there was a similarity between the percentages of respondents who considered bilingualism a risk factor (97.6%; N=41 out of 42) and those reporting bilingualism as no risk for stuttering (95.75%; N=158 out of 165). Participants' opinion of bilingualism as a risk factor appeared to be primarily influenced by personal perspective (N=35) and secondarily influenced by Continuing Education Units (CEUs; N=15). Participants who did not report bilingualism as a risk factor appeared to also be primarily influenced by personal perspective (N=101), and secondarily influenced by graduate coursework (N=73).

Most (N=39) of these 42 participants reported they have provided treatment to a bilingual child for a communication disorder and 61.5% of these participants (N=24) have provided treatment to a bilingual child for stuttering. Of the respondents who did not report bilingualism as a risk (N=165), 132 have provided treatment to a bilingual child for a communication disorder, and 49.24% of these participants (N=65) have provided treatment to a bilingual child for stuttering.

Participants who perceived bilingualism as a risk (N=42) were also asked to indicate whether they held any specialization specific to stuttering. Among participants who perceived bilingualism as a risk factor, 25 participants provided responses. Of these 25 respondents, 68% (N=17) reported having no specialization specific to stuttering, 16% (N=4) reported having board recognized specialty certification in Fluency and Fluency Disorders, and the remaining 16% (N=4) reported having experience with clients who stutter, completing management programs in stuttering, or have held direct leadership roles in their local *National Stuttering Association* chapters.

Participants who perceived bilingualism as a risk factor were asked to specify how many years of clinical practice they have completed. For ease of understanding, these data were divided into representative groups by number of years. Of the 42 participants, 40% (N=16)

<sup>1</sup> The ASHA ProFind Member Directory excludes members whose certifications are inactive, suspended or expelled. The directory does not, however, designate those who have active certifications, but are not currently practicing (e.g: retired).



indicated having less than 10 years of clinical experience, 30.9% (N=13) indicated having completed 10 to 20 years of clinical practice, 26.2% indicated having 20 or more years of clinical practice (N=11), and 2 participants provided no response. Among participants who did not perceive bilingualism as a risk (N=165), 95 participants provided responses when asked to indicate whether they held any specialization specific to stuttering. Of these 95 respondents, 70.5% (N=67) reported having board recognized specialty certification in Fluency and Fluency Disorders, and the remaining 2.9% (N=28) reported having completed the Lidcombe Program or currently serving as an instructor for a fluency and fluency disorders course.

Participants were also asked to indicate how many courses they have taken specific to stuttering. Among the participants who perceived bilingualism as a risk (N=42), two participants did not provide a response and 5 participants did not report a quantifiable response (i.e., reported taking many courses). So their responses were not included for that segment of the survey and related analyses. Of the remaining 35 participants, 77% (N=27) indicated having completed less than five stuttering courses, 17% (N=6) indicated having completed 5 to 10 stuttering courses, and 5.7% (N=2) reported completing over 10 courses on stuttering. When asked to indicate how many courses they have taken specific to stuttering 7 of the participants who did not perceive bilingualism as a risk factor (N=165) did not provide a response and 25 participants reported unquantifiable responses. So their responses were not included for this segment of results. Of the remaining 141 participants, 70.2% (N=99) indicated having less than five courses specific to stuttering, 8.5% (N=12) indicated having completed 5 to 10 stuttering courses, and 4.9% (N=7) reported completing over 10 courses in stuttering.

Results indicated differences in the number of direct diagnostic contact hours for clients who stutter between participants who perceived bilingualism as a risk (N=42) and those that did not (N=165). Participants provided estimates that ranged from zero for the least experienced to more than 5,000 direct contact hours for the most experienced participants. For ease of understanding, these values will be divided into numerical ranges for children and adults. Among the participants who perceived bilingualism as a risk (N=42), 42.8% (N=18) reported completing less than 10 direct assessment contact hours with children who stutter; 38% (N=16) completed between 10-30 contact hours; and 9.5% (N=4) completed between 40-50 diagnostic contact hours. Of the remaining 4 participants, 2 reported completing 300 hours, 1 reported 800 hours and the last reported 5,000 hours. With respect to adults who stutter, 71.4% (N=30) reported having less than ten direct diagnostic contact hours with adults who stutter and 19% (N=8) completed between 10 and 30 contact hours. The remaining four participants (9.5%) completed 40, 75, 600, and 5,000 hours respectively.

In reporting diagnostic contact hours for those who did not perceive bilingualism as a risk, 10 participants reported unquantifiable responses (e.g., "many" and "do not remember"). Thus, their data was not included in this segment of results. Of the remaining 155 participants, 43.2% (N=67) reported completing less than 10 direct assessment contact hours with children who stutter; 37.4% (N=58) reported completing between 10 and 30 contact hours; and 20% (N=31) reported completing over 30 direct diagnostic contact hours. When asked to report diagnostic contact hours with adults who stutter, 7 participants reported unquantifiable responses, leaving 158 participant responses for this segment of the results. Of the remaining responses, 71.5% (N=113) reported completing less than 10 diagnostic

contact hours with adults who stutter, 15.8% (N=25) completed between 10 and 30 contact hours and 12.6% (N=20) completed over 30 direct contact assessment hours with adults who stutter.

Relative to treatment, 48% (N=20) reported having treated less than 10 children who stutter and 21% (N=9) reported treated between 10 and 20 clients who stutter. Thirty-one percent (N=13) reported treating more than 30 pediatric clients. For adults who stutter, 75% (N=30) reported providing speech therapy to less than 10 adults who stutter, 17.5% (N=7) reported providing therapy to 10-20 adults who stutter, and 3 participants (7.5%) reported providing therapy to over 30 adults who stutter.

When asked about direct contact treatment hours with children who stutter for participants and who did not perceive bilingualism as a risk, 9 participants of 165 reported unquantifiable responses, leaving 156 participant responses for this segment of the results. Relative to treatment, 42.9% (N=20) reported having treated less than 10 children who stutter and 30% (N=47) reported treating between 10 and 20 clients who stutter. Twenty-six percent (N=41) reported treating more than 30 pediatric clients. When asked about treatment for adults who stutter, 71.5% (N=113) reported having treated less than 10 adults who stutter, 15.8% (N=25) reported treating between 10 and 30 adult clients. Twenty participants (12.6%) reported providing therapy to over 30 adults who stutter.

## Discussion

The primary purpose of the present study was to determine if SLPs misperceive bilingualism as risk factor. Based on the results, some clinicians do have a misperception of bilingualism as a risk factor for the development and/or maintenance of stuttering. However, an overwhelming amount of the practicing speech-language pathologists surveyed in the present study do not have this misperception. The discussion will review the factors that appear to be unique to those SLPs who misperceive bilingualism as a risk factor in comparison to those who do not in an attempt to determine what factors influence accurate versus inaccurate perceptions.

### Influence of demographics

The results of this study indicated that while there appeared to be consistent similarities across participants who did and did not perceive bilingualism as a risk in terms of age and education, there were differences in the years of overall clinical experience. Respondents who perceived bilingualism as a risk (N=41 of 42) had less average years of clinical experience (15.79 years) when compared to participants who did not (N=165; 19.72 years). One might assume that older SLPs with more advanced degrees would be distinctly more knowledgeable but the results from the present study do not support that assumption. These findings are similar to those reported by Byrd, et al. [4] as they reported the SLP who provided the most accurate diagnostic results was, in fact, the youngest in age and had not yet completed her master's degree, but had unique experience in her regard to her coursework; a factor that is discussed in more detail in the following section.

### Influence of coursework

Across groups, no noticeable differences were observed between participants who perceived bilingualism as a risk and those that did not with respect to the number of stuttering courses taken. This finding confirms recent research to suggest that it is not whether or not you have taken a course, but the expertise of the person teaching the course

[24]. Often, the stuttering course is taught by persons who do not consider themselves to be specialists in this area, but were simply the only faculty member willing to teach the course. Coalson and colleagues [24] also found that those students who went on to have more specialized knowledge in the area of stuttering were ones who had both an undergraduate and a graduate course. The survey in the present study did not distinguish among the types of courses the respondents had completed. Future research should consider whether exposure at the undergraduate and graduate level makes a difference in the accuracy of perceptions of bilingualism as a risk factor. Additionally, Byrd et al. [4] reported that SLPs who had completed courses in bilingualism and in stuttering were more likely to accurately identify bilingual children who stutter versus bilingual children who do not stutter. Perhaps, exposure to these distinct types of academic courses would also lead to increased accuracy in an SLPs' perception of bilingualism as a risk factor.

### **Influence of clinical experience**

However, participants who perceived bilingualism (N=42) as a risk did report having less overall clinical experience in comparison to participants who did not perceive bilingualism as a risk (N=165). With regards to treatment, both groups reported having similar clinical experience in treating children who stutter. However, for treatment with adults, those who did not perceive bilingualism as a risk factor (N=165) reported having more clinical experience with a larger percentage reporting having had treated more than 30 adults who stutter.

Overall, it appears at least based on the presented findings – clinical experience with fluency disorders plays a major role in the knowledge and understanding of valid contributing factors influencing the development and maintenance of stuttering. However, some clinicians, despite having many years of practice, still perceived bilingualism to be a risk factor. Present findings lend support to the need for specialized clinical training and education in fluency and fluency disorders that is focused directly on bilingualism and stuttering. The findings also create an impetus to reach experienced clinicians by means of continuing education in order to change well established perceptions of bilingualism as a risk factor. The majority of the Board Certified Fluency Specialists (N=19) who participated in the present study did not misperceive bilingualism as a risk factor. However, 4 specialists did. This finding indicates that even among those who have arguably received the most advanced training and clinical experiences; there is still a need for education with regard to the relationship between stuttering and bilingualism. Nevertheless, our data lend support to clinical experience being a key differentiating factor between those who perceived bilingualism as a risk factor and those that did not.

### **Influence of personal perspective**

Across the responses provided regarding what factor influenced their perception of bilingualism as an increased risk for stuttering onset and persistence, personal perspective was the highest response. Personal perspective can be influenced by experiences that may not necessarily be based on evidence or factual information regarding bilingualism and stuttering. This finding supports the notion of educating and training clinicians to use empirical sources as their primary reference as opposed to personal perspective when assessing and treating fluency and fluency disorders. The principles of evidence-based practice require that clinicians use their clinical experience as a guide with the understanding that empirical data (as well client

perspective) is a critical piece. Clinicians should be warned against making decisions that include unsubstantiated personal experience. Instead, clinicians should be encouraged to seek input from peers, from ASHA references such as the practice portal, evidence-based briefs, etc.

### *With the exception of bilingualism, are participants well informed of the risk factors of stuttering?*

Recall that the present study included foils to ensure that the participants would not be influenced to think differently about whether or not they considered bilingualism as a risk factor. Specifically, in addition to bilingualism, we also asked participants to consider whether or not they perceived age of onset, gender, or family history to be a risk factor for the onset or persistence of stuttering. Findings from the present study suggest that those participants who misperceived bilingualism as a risk factor correctly identified the other well-known risk factors of stuttering. Therefore, based on the results, albeit not true for bilingualism, it does appear that most SLPs are knowledgeable of the risk factors commonly associated with development and persistence in stuttering.

This finding suggests the need to increase focused education and training on bilingualism and stuttering acquisition.

### **Additional considerations**

Given that there were a limited number of participants, these data should be interpreted with caution. Participant recruitment through paid ASHA membership email/ mailing lists may have resulted in increased survey participation. However, due to financial limitations, the authors chose to obtain emails via the public directory at no cost. Recommendations for future research include using a survey system similar to *Qualtrics* for the development and distribution of surveys as well as participation in the paid mailing program offered by ASHA.

Questions in the present survey included closed- and open-ended questions. Allowing participants to write free response answers can be beneficial to understand how perspectives are formed, but should be used sparingly as it is difficult to quantify and make conclusions regarding groups of data that are not in the same units of measure (e.g., many vs. 5). Obtaining more information regarding participant demographics such as which settings participants primarily worked in could help us to develop a more thorough participant profile.

### **Conclusion**

Findings from the present study indicate that there are indeed SLPs who misperceive bilingualism as a risk factor for stuttering, but the large majority surveyed do not. The question remains as to how best to educate SLPs such that there is no further consideration of bilingualism increasing the likelihood of development and/or persistence of stuttering. Although the present study is preliminary in nature, it is clear that one's depth of clinical experience and personal perspectives greatly contribute to this misperception. Future research should expand this area of investigation to include a larger sample size and include examination of specific ways to reduce misperceptions of the relationship between bilingualism and stuttering. Future investigations should also examine the diagnostic accuracy of clinicians who perceive bilingualism as a risk factor as compared with clinicians who do not perceive bilingualism as a risk factor. Expanding this line of research will enhance our understanding of how

misperceptions influence differential diagnosis, particularly in those populations at risk for false positive diagnoses.

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