



Implications of United States Service Evidence for Growing Multiethnic Adult Neurorehabilitation Caseloads Worldwide



Implications des données relatives aux services offerts aux États-Unis sur l'augmentation mondiale du nombre de cas adultes appartenant à des groupes ethniques qui nécessitent des services de neuro-réadaptation

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KEYWORDS
AGING
BILINGUAL SPEAKERS
DEMENTIA
ETHNOGERIATRIC GROUPS
INTERNATIONAL MIGRATION
NEUROREHABILITATION
MINORITY ADULTS
STROKE

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Abstract

The interaction of worldwide population aging with the concurrent growth in global ethnoracial diversity is estimated to substantially expand ethnogeriatric neurorehabilitation groups in the United States and other diverse high-migration world regions. Assessments of service provision to communicatively impaired multilingual-multiethnic neurorehabilitation caseloads in the United States may generate useful evidence with implications for other diverse adult rehabilitation contexts. This study assessed differences in the extent of professional training and availability of post-graduate professional development offerings that might exist in speech-language pathology service provision to minority adults in general relative to bilingual adults in multiethnic adult neurorehabilitation caseloads in the United States. A 36-question, 6-section survey administered to health care-based speech-language pathologists in the most diverse states in the United States examined service delivery to multiethnic adult neurorehabilitation groups. A data subset from this survey research was statistically assessed using descriptive and inferential statistics to address the target research questions. Results indicate that despite an overall limited exposure to multiethnic adult populations in their training, speech-language pathologists felt better trained to serve minority adults in general relative to bilingual adults. Speech-language pathologists also are interested in post-graduate professional development resources to improve their competencies to serve these two groups. We extrapolate the implications of our findings to the diverse high-migration Canadian context to further illustrate the impact of global ethnogeriatric trends on professional neurorehabilitation services in hyperdiverse areas. Future studies will broaden our preliminary findings to specify additional remedial areas in the services for the growing ethnogeriatric neurorehabilitation caseloads across the world.

Editor:
Karine Marcotte

Editor-in-Chief:
David H. McFarland

Abrégé

On estime que l'interaction entre le vieillissement de la population mondiale et l'augmentation concomitante de la diversité ethnoraciale à l'échelle internationale entraînera une augmentation significative du nombre de personnes âgées appartenant à divers groupes ethniques nécessitant des services de neuro-réadaptation aux États-Unis et ailleurs dans le monde où la migration est forte. Analyser les services de neuro-réadaptation offerts aux États-Unis aux patients multilingues et appartenant à divers groupes ethniques ayant un trouble de la communication peut générer des données utiles à d'autres contextes de réadaptation. La présente étude a analysé les différences quant au degré de préparation professionnelle et aux opportunités de perfectionnement professionnel postuniversitaire sur les services orthophoniques offerts aux adultes appartenant à des minorités ethniques et aux adultes bilingues. Un sondage comprenant 36 questions réparties dans six sections a été rempli par des orthophonistes travaillant dans des établissements de soins de santé dans les états américains les plus diversifiés. Ce sondage portait sur les services de neuro-réadaptation offerts aux adultes appartenant à divers groupes ethniques. Un sous-ensemble de données provenant de ce sondage a été analysé à l'aide de statistiques descriptives et inférentielles afin de répondre aux questions de recherche ciblées. Les résultats indiquent que, même si l'exposition des orthophonistes aux populations adultes multiculturelles au cours de leur formation était limitée, ils se sentaient mieux formés pour servir des adultes appartenant à des groupes ethniques minoritaires que pour servir des adultes bilingues. Les orthophonistes étaient également intéressés aux ressources de perfectionnement professionnel postuniversitaire afin d'améliorer leurs compétences. Nous étendons les résultats de notre étude au contexte canadien où la migration est forte et diversifiée, afin d'illustrer davantage l'impact des tendances mondiales de vieillissement et diversification de la population sur les services professionnels de neuro-réadaptation offerts dans les régions hautement diversifiées. De futures études permettront d'élargir nos résultats préliminaires afin de préciser les aspects pouvant être améliorés à l'échelle mondiale dans les services de neuro-réadaptation offerts au nombre croissant de personnes appartenant à des groupes ethniques.

The world is rapidly aging and becoming more diverse. Steady rates of aging coupled with the concurrent global increase in ethnoracial diversity are projected to translate into larger ethnogeriatric groups with age-related disabling health conditions, prominently including cardiovascular disease and neurocognitive disorders (Cummings-Vaughn, 2017; Prince et al., 2015). The global population aged ≥ 60 years doubled to reach 962 million from 1980 to 2017 and is estimated to double again to about 2.1 billion by 2050 (United Nations, Department of Economic and Social Affairs, Population Division, 2017). Yet, the ≥ 80 years cohort, the most vulnerable group known as the “oldest-old,” is anticipated to grow more than threefold from 137 million to 425 million between 2017 and 2050 (United Nations, Department of Economic and Social Affairs, Population Division, 2017).

Driven by international migration, an exponential increase in global ethnoracial diversity parallels worldwide aging. In many world regions, diversity scenarios consisting of numerous ethnic groups, including Indigenous populations, have expanded as new international migrants arrive, many of which are older individuals and refugee groups (International Organization for Migration, 2017). International migration progressively grew from 173 to 258 million individuals between 2000 and 2017 (United Nations, Department of Economic and Social Affairs, Population Division, 2017). Notably, among international migrants the global population of forcibly displaced people reached a record high of 70.8 million in 2018, up from 43.3 million in 2009 (United Nations High Commissioner for Refugees, 2019). As a result, demographic environments in regions of high incoming migration, such as Asia, Europe, and North America (International Organization for Migration, 2017), have steadily become linguistically, socially, and culturally complex multiethnic communities representing a variety of languages, dialects, levels of multilingualism, socioeconomic circumstances, educational experiences, and cultural norms (Krasnik, Bhopal, Gruer, & Kumanika, 2018).

Global population aging is anticipated to result in a higher prevalence of age-related, long-term disabilities from cardiovascular complications due to stroke and neurocognitive deterioration due to dementia, particularly in minority individuals in multiethnic communities (Feigin et al., 2019; Morgenstern & Kissela, 2015; Nichols et al., 2019). Risk factors for cardiovascular and neurocognitive disorders, such as low physical activity, obesity, hypertension, and coronary heart disease, substantially increase with aging (Howard et al., 2017; Matthews et al., 2019; Obviagele et al., 2013). By 2030, reflecting worldwide population aging, stroke survivors are projected to reach 73 million and individuals with dementia near 75 million (Feigin et al., 2014;

World Health Organization [WHO], 2019). In multiethnic communities, certain social, institutional, and cultural health determinants (e.g., socioeconomic circumstances, language barriers, minimal access to health literacy, poor health care) increase the chances of stroke and dementia (Cruz-Flores et al., 2011; Harris & Fleming, 2009; Mulvahill & Cummings-Vaughn, 2017). As the population becomes older and more diverse, persisting high incidence of stroke and dementia, particularly in individuals aged ≥ 75 and in minority groups, is estimated (Chin, Negash, & Hamilton, 2011; Howard & Goff, 2012; Morgenstern & Kissela, 2015).

A high prevalence of stroke and dementia will create larger service demands to address the clinical needs of multiethnic caseloads in adult neurorehabilitation facilities in many world regions (Cummings-Vaughn, 2017; Krueger et al., 2015; Morgenstern & Kissela, 2015; WHO, 2015, 2019). Resulting chronic disabilities from stroke and dementia will require multidisciplinary teams for long-term neurorehabilitation of self-care, mobility, cognition, communication, and feeding complications (Robnett, Brossoie, & Chop, 2020; Yorkston, Bourgeois, & Baylor, 2010). Thus, it becomes increasingly essential to have well-prepared speech-language pathologists (S-LPs) to provide appropriate evidence-based, culturally responsive services to culturally and linguistically diverse (CLD) adult neurorehabilitation caseloads. In this paper, we relate preliminary professional findings on multiethnic neurorehabilitation services in the United States to the similarly diverse neurorehabilitation context in Canada, a high-migration country as the United States, to further illustrate how global ethnogeriatric trends may impact speech-language pathology rehabilitative services worldwide as the population ages and becomes more diverse.

Demographic–Neuroepidemiological Interconnections in the United States

Consistent with worldwide ethnogeriatric trends, the U.S. population simultaneously is aging and becoming increasingly more multiethnic. By 2060, the ≥ 65 years U.S. population is expected to more than double, reaching about 92 million, including a triple growth in the ≥ 85 years cohort to approximately 18.2 million (Ortman, Velkoff, & Hogan, 2014). Ethnoracial minorities currently represent 37% (116.2 million) of the total U.S. population (316.4 million). Hispanics make up the largest minority segment, followed by Blacks or African Americans, Asians, American Indians and Alaska Natives, and Native Hawaiians and other Pacific Islanders. The non-Hispanic White majority makes up 63% (199.3 million) of the population (Humes, Jones, & Ramirez, 2011; United States Census Bureau, 2012).

As seen in much of the world, immigration will continue to be the primary cause of population growth and national ethnoracial change in the United States (Pew Research Center, 2015; United Nations, 2017). By 2060, individuals from CLD backgrounds will make up 57% of the U.S. population (United States Census Bureau, 2012). Regarding adults ≥ 65 years, by 2050 U.S. minorities are estimated to comprise about 40% of this population segment (Federal Inter-agency Forum on Aging, 2012). Ethnoracial diversity in the United States reflects the typical socioeconomic, linguistic, and cultural variability of multiethnic contexts worldwide. In terms of linguistic profiles, these include dialectal speakers of English, monolingual and multilingual users of minority languages, and bilingual speakers of English and a minority language (Centeno, 2015).

Reflecting aging and diversity projections in the country, an estimated increase in the incidence of stroke and dementia (Fleming & Harris, 2017; Koton et al., 2014; Matthews et al., 2019; Winstein et al., 2016) is expected to amplify the need for a larger neurorehabilitation workforce, especially to work with older minority groups. While there will be an additional 3.4 million stroke survivors by 2030 (Obviagele et al., 2013), about 14 million individuals with Alzheimer's disease and related dementia also are estimated by 2060 (Matthews et al., 2019). High numbers of stroke- or dementia-disabled minority individuals in multiethnic U.S. communities are projected (Centeno, 2017; Uomoto & Loughlin, 2016).

A detailed discussion on the effects of race and ethnicity on stroke and dementia epidemiology in the United States is beyond the scope of this article (for exhaustive reviews, see Chin et al., 2011; Cruz-Flores et al., 2011; Matthews et al., 2019; Mozaffarian et al., 2016; Obviagele et al., 2013). Yet, there are epidemiological trends that are worth highlighting as they raise major concerns with relevance to stroke and dementia care in U.S. minority adults. Regarding stroke, ethnoracial disparities in stroke prevalence have been associated with a cluster of key variables including age, sex, race/ethnicity, level of education, and geographic location. Specifically, older adults, Blacks, American Indians/Alaska Natives, persons with lower levels of education, and persons living in the southeastern United States have been reported to have higher stroke prevalence (Centers for Disease Control and Prevention, 2012). Regarding dementia, the pathophysiological pathway of dementia and other related neurocognitive complications is similar across ethnoracial groups. However, socioeconomic and cultural factors, such as educational attainment, wealth, quality and extent in preventive care, physical activity, and biological variables (e.g., genetics), may be responsible for the high prevalence of dementia risk factors in African Americans and Hispanics, which include diabetes, hypertension, and cardiovascular

health (Chen & Zissimopoulos, 2018; Chin et al., 2011).

Considering stroke and dementia group data and Census population estimates, including international migration trends, prevalence estimates project that by 2030 as the U.S. population steadily ages, the stroke prevalence in Hispanic men will have the greatest increase followed by other races and ethnicities in the ≥ 65 years segment of the population, especially those ≥ 85 years (Mozaffarian et al., 2016; Obviagele et al., 2013). Regarding dementia, by 2030, as the ≥ 85 years group outpaces other aging groups with dementia, the number of non-Hispanic Whites with dementia will start to plateau while minority populations with dementia will grow, particularly Hispanic individuals (Matthews et al., 2019).

Clinical and Professional Scenario in Ethnoracially Diverse Speech-Language Pathology Neurorehabilitation Services Across the World

The complexity of clinical management in neurogenic communication disorders increases substantially when treating adults from CLD backgrounds. Effective clinical service provision in multiethnic adult environments requires the ability to differentiate between communication dysfunctions as a result of neurological damage and communication differences resulting from social, cultural, and linguistic life experiences (Armstrong, Hersh, Hayward, & Fraser, 2015; Centeno, Ghazi-Saidi, & Ansaldo, 2017; Threats, 2005). Practitioners need unbiased assessment materials and evidence-based intervention procedures to provide appropriate diagnostic and effective therapeutic services (Ansaldo, Marcotte, Scherer, & Raboyeau, 2008; Armstrong et al., 2015; Centeno et al., 2017; Kay-Raining Bird, 2014; Muñoz, 2012). Additionally, practitioners must consider the impact of socioeconomic, sociopolitical, and cultural factors on service delivery to adults from CLD backgrounds (Balcazar, 2010; Kay-Raining Bird, 2011; Penn et al., 2017).

Epidemiological forecasts strongly suggest that the largely adult-based caseload of S-LPs in U.S. health care settings (ASHA, 2013a; Brook, 2015), including neurorehabilitation services, will experience growth in its stroke- and dementia-impaired minority cohort, a pattern similarly expected in many countries (Bennett, Cartwright, & Young, 2017; Krueger et al., 2015; Norris, Jones, Kilbride, & Victor, 2014; WHO, 2015). Yet, despite present and projected demographic and neuroepidemiological trends, the limited research evidence on service provision to minority adults with neurogenic communication impairments in the United States and other similar multiethnic contexts highlights that S-LPs in health care settings have neither adequate professional preparation

nor population-specific clinical resources to optimally serve an ethnoracially diverse adult caseload (American Speech-Language-Hearing Association [ASHA], 2011; Brewer, McCann, Worrall, Harwood, 2015; Centeno, 2009, 2015; D'Souza, Kay-Raining Bird, & Deacon, 2012; Hersh, Armstrong, Panak, & Coombes, 2015; Rose, Ferguson, Power, Togher, & Worrall, 2014). Additionally, there is a lack of population-specific evidence to guide best clinical practices for minority adults with neurogenic communication disorders (Beveridge & Bak, 2011; Ellis, 2009). In the current climate of evidence-based practice as an intervention standard (Turkstra, Norman, Whyte, Dijkers, & Hart, 2016), the need for quality research evidence is essential on adult ethnoracially mixed populations in neurorehabilitation.

Aims of the Study

Steady growth in the ethnoracial diversity of aging populations across the world compels systematic scrutiny of current service provision to communicatively disordered multiethnic neurorehabilitation caseloads with the aim of specifying conceptual, professional, and clinical aspects that can benefit from corrective research and training strategies. The purpose of this paper is to (a) discuss preliminary evidence on the current extent of professional preparation and available resources that S-LPs have to serve communicatively disordered adults in multiethnic U.S. neurorehabilitation caseloads and (b) relate that evidence to a similarly diverse rehabilitative context, such as Canada, in order to highlight the professional repercussions of increasing ethnogeriatric neurorehabilitation caseloads worldwide.

We report a data subset from a larger survey that focuses on assessing services for CLD adult U.S. populations with neurogenic communication disorders. Survey responses that extensively targeted the clinical management of bilingual adults are reported elsewhere (i.e., Centeno, 2015). The present article focuses on a small set of survey items that compares differences in the extent of professional preparation and the degree of available clinical resources and professional development opportunities to serve minority adults in general relative to bilingual adults in ethnoracially diverse adult neurorehabilitation contexts.

Consistent with other large CLD environments across the world (Krasnik et al., 2018), extensive diversity in the United States has resulted in widespread bilingualism. Of the 21% (60 million) individuals in the United States who use a minority language, close to 78% (47 million) of them also speak English (Ryan, 2013). The current evidence on systematic professional assessments of services to multiethnic adult neurorehabilitation populations includes no published reports that specify the possible differences and gaps that

might exist in the professional preparation and clinical resources to work with minority and bilingual populations in multiethnic neurorehabilitation contexts (e.g., Armstrong et al., 2015; Centeno, 2009, 2015; Rose et al., 2014).

Evidence from this study, while being useful to target remediation areas in training and resource development, may similarly generate valuable information to minimize service disparities in quality and clinical outcomes for ethnoracial minority adults in neurorehabilitation (Ellis, Peach, Hardy, & Lindrooth, 2017; Norris et al., 2014; Uomoto & Loughlin, 2016; Wilk, Cooke, Cooke, Stranges, & Maltby, 2018). Health care disparities in minority ethnoracial groups in part result from the complex interaction of factors encompassing socioeconomic circumstances, insurance, culture, and training limitations among health care providers (Agency for Healthcare Research and Quality, 2020; Frohlich, Ross, & Richmond, 2006; National Institute of Neurological Disorders and Stroke, 2020; WHO, 2015).

Method

A detailed description of the methodological aspects of this larger survey study, which was approved by the first author's Institutional Review Board (protocol # 0511-138, 05/13/2011), is discussed in an earlier publication (i.e., Centeno, 2015). In this article, we summarize those methodological aspects.

Participants

We mailed the survey instrument to 1,000 health care-based S-LPs randomly selected from the ASHA databases of clinicians serving adults. We sent the survey to 250 prospective participants in each of the four states in the United States with the largest immigrant populations and the highest population diversity: California, Florida, New York, and Texas (Humes et al., 2011).

Materials and Procedures

Survey design. A 36-question, six-section survey was developed using the necessary stages of planning, design, review, and revision before final administration of the survey instrument (Centeno, 2015). The survey consisted of close-ended questions (e.g., multiple choice format) and 1 (*least*) to 5 (*most*) self-assessment Likert-type questions. The six sections of the survey were respondents' background, work setting and client caseload, professional training, materials and procedures, service delivery, and suggestions to improve professional preparation to serve minority adults including bilingual persons.

Although the survey primarily aimed to examine areas pertinent to the services with bilingual adults, the survey

also included several questions on minority adults in the sections on professional training, service delivery, and suggestions to strengthen professional education. These questions on minority adults, together with similar questions on bilingual speakers, intended to simultaneously gather responses on minority adults in general and bilingual adults to compare S-LPs' extent of professional preparation, satisfaction with available information, and interest in post-graduate resources relevant to the overall minority adult population relative to the bilingual adults receiving services in diverse neurorehabilitation caseloads. We report results on that set of comparative questions in the survey (i.e., Qs. 18–19, 22–23, 27–28, 33–34, and 35–36; see Appendix). One additional question (Q. 30), relevant to available information and resources on bilingual adults from the different ethnic and racial groups, was included in the analysis given the current and projected high numbers of bilingual speakers among the minority adults encountered in diverse neurorehabilitation settings discussed earlier.

Procedures. We mailed prospective participants a cover letter, the survey instrument, and a pre-stamped return envelope. The cover letter explained the rationale of the survey study, asked participants for their consent, and invited each participant to answer the survey anonymously and return it to the first author in the enclosed envelope.

Data Analysis

Descriptive statistics (i.e., percentages, means, standard deviations, and mean ranks) and inferential statistics (i.e., Friedman and Wilcoxon tests) were employed to analyze the results. Responses to closed-ended questions (multiple choice formats) were analyzed using percentages to assess response distributions (Q. 30). Self-assessment Likert-type questions were assessed (a) as percentages of response distributions when the question targeted only one dimension (Qs. 22, 23, 27, 28, 33, 34) and (b) as means, standard deviations, and mean ranks when the question assessed a series of related items whose relative effect could be hierarchically ranked for comparison of frequency (Qs. 18, 19, 35, 36). When comparisons were made among hierarchical rating ranks, the Friedman and Wilcoxon tests were employed to assess if there were significant ranking differences within the factors included in each individual question. Specifically, once we determined that there were significant differences among the items through the Friedman test, we used the Wilcoxon test to examine paired differences. Mean rankings, on which the Friedman and Wilcoxon tests were run, as well as means and standard deviations are provided for readers to appreciate the ranking order and differences.

Results

We statistically assessed 125 surveys (12.5% final response rate) to answer the research questions in this investigation. The limited response rate in this study is consistent with similar aphasia surveys that despite limited response rates have provided valuable preliminary findings (e.g., Hinckley, Hasselkus, & Ganzfried, 2013; Simmons-Mackie, Threats, & Kagan 2005). Thus, results from this initial investigation must be interpreted with this caveat in mind and considered to be preliminary. Responses provided by our informants are deemed representative of speech-language pathology practitioners in the United States working in adult neurorehabilitation contexts. Consistent with the ASHA membership working in health care contexts (ASHA, 2013a), most of our respondents were full-time monolingual Master's-level White female clinicians with 16+ years of experience.

Results are presented in two sections. The first section includes the data on professional preparation relevant to ethnoracial groups covered in coursework and clinical practicum, as well as the extent of training received to serve minority adults versus bilingual adults. The second section covers results on practitioners' overall satisfaction with current post-training information and resources, the extent of information available on each bilingual group from the different ethnic and racial backgrounds, and the degree of interest in post-graduate educational offerings for professional development.

Racial Emphasis and Extent of Professional Preparation on CLD Adult Populations

In terms of the degree that respondents were exposed to minority groups in their professional education (Qs. 18 and 19), the ranks in **Tables 1 and 2** suggest that classroom discussions and clinical training most often focused on White members of the population with Black and Hispanic/Latino individuals as second in frequency, followed by Asian/Pacific Islanders and, finally, Native or Alaska natives (Friedman tests: classroom discussions, $\chi^2 = 302.61$, 4 *df*, $p < .001$, and clinical training, $\chi^2 = 381.90$, 4 *df*, $p < .001$).

Regarding the extent to which respondents felt they were educated to work with minority adults in general and bilingual adults (Qs. 22 and 23), differences in the responses were significant (Wilcoxon z-score = 4.52, $p < .001$). Results shown in **Table 3** suggest that though most practitioners appear to be moderately to greatly prepared to serve minority adults (64.8%), they reported being minimally to moderately prepared to work with bilingual adults (66.4%).

Table 1
Ethnic/Racial Emphasis in Coursework (N = 124)

Racial/ethnic category ^a	Never	Infrequently	Sometimes	Frequently	Very frequently	Mean rank	Wilcoxon z(diff) with next	p(z)
White						4.37	7.16	.00
n	16	8	10	27	63			
%	12.9	6.5	8.1	21.8	50.8			
Black						3.44	3.04	.00
n	16	27	52	23	6			
%	12.9	21.8	41.9	18.5	4.8			
Hispanic/Latino						3.25	7.49	.00
n	25	28	49	19	3			
%	20.2	22.6	39.5	15.3	2.4			
Asian/Pacific Islander						2.21	5.63	.00
n	53	43	26	2	0			
%	42.7	34.7	21.0	1.6	0.0			
Native American or Alaska native						1.73		
n	78	35	10	1	0			
%	62.9	28.2	8.1	0.8	0.0			

Note. ^aFriedman test: $\chi^2 = 302.61, 4 df, p < .001$. One respondent did not answer this question.

Post-Training Resources for Clinical Service and Professional Development

On overall satisfaction with present information and resources (Qs. 27 and 28), rankings were significantly different between the two groups (Wilcoxon z-score = 2.50, $p = .012$). As shown in **Table 4**, despite most ratings being low at a dissatisfied-I don't know level, for those respondents that were satisfied they expressed feeling slightly more satisfied to very satisfied with the available information on minority clients in general (17.6%) than on bilingual clients (12.8%).

When asked to rate availability of resources among bilingual groups in the ethnic groups (Q. 30), **Table 5** shows that respondents have the most access to resources and information on adult bilingual speakers who are Hispanic/Latino(a) (47.2%) followed by those that are White (30.4%) or Black (13.6%).

Finally, on post-graduate educational offerings for further professional growth, we first report on overall interest in

participating in Continuing Education activities (Qs. 33 and 34). **Table 6** reports frequencies primarily clustered around a moderate level of interest for both minority adults (34.4%) and bilingual adults (33.6%). Differences were not significant between interest in Continuing Education opportunities relevant to minority or bilingual adults.

Next, on specific post-graduate professional opportunities to minimize service gaps on minority individuals as a whole and bilingual adults (Qs. 35 and 36), respondents rated five resources as being most important among the resources listed in the survey. Results in **Tables 7 and 8** suggest that, overall, respondents rated the availability of linguistically and culturally appropriate therapy materials as the resource they would be the most interested in having available to better serve both minority and bilingual adults followed by suitable formal testing instruments to assess these individuals. Differences in the responses were significant (minority adults: $\chi^2 = 131.42, 4 df, p < .001$; bilingual adults: $\chi^2 = 72.30, 4 df, p < .001$). Specifically, regarding

Table 2
Ethnic/Racial Emphasis in Clinical Training (N = 125)

Racial/ethnic category ^a	Never	Infrequently	Sometimes	Frequently	Very frequently	Mean rank	Wilcoxon z(diff) with next	p(z)
White						4.80	8.56	.00
n	1	1	1	20	102			
%	0.8	0.8	0.8	16.0	81.6			
Black						3.43	2.88	.00
n	14	30	41	25	15			
%	11.2	24.0	32.8	20.0	12.0			
Hispanic/Latino						3.15	7.09	.00
n	23	32	34	29	7			
%	18.4	25.6	27.2	23.2	5.6			
Asian/Pacific Islander						2.09	5.67	.00
n	59	45	16	4	1			
%	47.2	36.0	12.8	3.2	0.8			
Native American or Alaska native						1.52		
n	98	23	3	1	0			
%	78.4	18.4	2.4	0.8	0			

Note. ^aFriedman test: $\chi^2 = 381.90, 4 df, p < .001$.

Table 3
Extent of Preparation to Work with Minority and Bilingual Adults (N = 125)

	Extent of preparation ^a					Missing
	None 1	Minimal 2	Moderate 3	Great 4	Very great 5	
Minority adults						
n	2	26	41	40	16	0
%	1.6	20.8	32.8	32.0	12.8	0.0
Bilingual adults						
n	6	42	41	27	8	1
%	4.8	33.6	32.8	21.6	6.4	0.8

Note. ^aWilcoxon z-score = 4.52, p < .001.

Table 4
Extent of Satisfaction with the Information Available to Serve Minority and Bilingual Adults (N = 125)

Group ^a	Very Dissatisfied 1	Dissatisfied 2	I don't know 3	Satisfied 4	Very satisfied 5	Missing
Minority adults						
<i>n</i>	8	39	55	21	1	1
%	6.4	31.2	44.0	16.8	0.8	0.8
Bilingual adults						
<i>n</i>	9	50	50	15	1	0
%	7.2	40.0	40.0	12.0	0.8	0.0

Note. ^aWilcoxon z-score = 2.50, *p* = .012.

Table 5
Extent of Information Available on Bilingual Speakers from Each Ethnic/Racial Adult Group (N = 125)

Racial/ethnic group	<i>n</i>	%
Hispanic/Latino(a)	59	47.2
White	38	30.4
Black	17	13.6
Other	1	0.8
Missing	10	8.0

minority adults, participants were most interested in access to appropriate therapy materials, followed by appropriate testing tools, journal articles on minority adults, consultants on minority adults from ASHA or other organizations, and publications on minority adults. For bilingual adults, participants were most interested in access to suitable therapy materials, followed by tests in the client’s native language, learning how to use an interpreter/translator, publications on bilingualism, and consultants on bilingualism from ASHA or other organizations.

Discussion

The purpose of this paper was to assess whether in the growing multiethnic adult neurorehabilitation caseloads in the United States there are any differences in the professional preparation, available clinical resources, and professional development opportunities relevant to the services rendered by S-LPs to minority adults relative to bilingual adults. Results support that respondents’ professional education, including both coursework and clinical training, was primarily focused on Whites compared

to members of other ethnoracial groups. Despite the limited exposure to CLD adult populations in their professional education, practitioners felt moderately to greatly prepared to serve minority adults in general compared to feeling minimally to moderately prepared to work with bilingual adults with neurogenic communication disorders.

Responses overwhelmingly suggested dissatisfaction with the current information and resources available for post-graduate professional development regarding both minority and bilingual adult groups. When comparing resource availability among bilingual groups, most of the information available focused on Hispanic/Latino(a) individuals. Finally, respondents were moderately interested in Continuing Education activities relevant to the target populations of this study. In terms of clinical resources, they ranked linguistically and culturally appropriate therapy materials and testing instruments as the most requested resources, followed by publications and consultants from ASHA or other organizations. Regarding bilingual adults, practitioners additionally expressed interest in receiving

Table 6
Extent of Interest in Continuing Education Activities on Minority and Bilingual Adults (N = 125)

	Extent of interest ^a				
	Not at all 1	Mild 2	Moderate 3	Quite 4	Extreme 5
Minority adults					
<i>n</i>	10	31	43	26	15
%	8.0	24.8	34.4	20.8	12.0
Bilingual adults					
<i>n</i>	8	32	42	26	17
%	6.4	25.6	33.6	20.8	13.6

Note. ^aWilcoxon z-score = 1.31, ns.

Table 7
Extent of Interest in Resources to Enhance Services with Minority Adults (N = 125)

Resources ^a	Interest level					Mean rank	Wilcoxon z(diff) with next	p(z)
	Not at all	Mildly	Moderately	Quite	Extremely			
Linguistically and culturally appropriate therapy materials						3.80	4.38	.00
<i>n</i>	3	14	21	40	47			
%	2.4	11.2	16.8	32.0	37.6			
Linguistically and culturally appropriate tests						3.49	5.92	.00
<i>n</i>	4	15	28	40	38			
%	3.2	12.0	22.4	32.0	30.4			
Journal articles on minority adults						2.60	0.05	.96
<i>n</i>	5	38	33	33	16			
%	4.0	30.4	26.4	26.4	12.8			
Consultants on minority adults from ASHA or other organizations						2.56	0.11	.92
<i>n</i>	12	31	32	29	21			
%	9.6	24.8	25.6	23.2	16.8			
Publications on minority adults						2.55		
<i>n</i>	9	31	36	32	17			
%	7.2	24.8	28.8	25.6	13.6			

Note. ^aFriedman test: $\chi^2 = 131.42, 4 df, p < .001$.

Table 8								
Extent of Interest in Resources to Enhance Services with Bilingual Adults (N = 125)								
Resources ^a	Interest level					Mean Rank	Wilcoxon z(diff) with next	p(z)
	Not at all	Mildly	Moderately	Quite	Extremely			
Linguistically and culturally appropriate therapy materials						3.78	5.54	.00
n	5	13	16	40	51			
%	4.0	10.4	12.8	32.0	40.8			
Formal tests in the clients' native language						3.12	1.43	.15
n	12	16	26	36	35			
%	9.6	12.8	20.8	28.8	28.0			
Learning how to use an interpreter/translator						2.86	1.71	.09
n	8	25	30	37	25			
%	6.4	20.0	24.0	29.6	20.0			
Publications on bilingualism						2.62	0.02	.98
n	11	27	36	31	20			
%	8.8	21.6	28.8	24.8	16.0			
Consultants and bilingualism from ASHA or other organizations						2.62		
n	15	27	30	27	26			
%	12.0	21.6	24.0	21.6	20.8			

Note. ^aFriedman test: $\chi^2 = 72.30, 4 \text{ df}, p < .001$.

training in how to work effectively with interpreters/translators.

Our results, albeit not directly comparable with ASHA's health care professional assessments, are in line with some of the insights reported by ASHA. ASHA-certified, health care-based S-LPs reported to have average to qualified levels of professional training to address cultural and linguistic influences on service delivery and outcomes (ASHA, 2011, 2013b; Brook, 2015). However, ASHA health care professional assessments (ASHA, 2011, 2013a, 2013b; Brook, 2015), based on a national respondent sample, provide consolidated responses on both pediatric and adult caseloads seen in health care. In contrast, our survey study involving a respondent pool from the four most diverse states in the nation exclusively focused on assessment responses on services with neurologically impaired adults. ASHA's consolidated health care findings, suggesting an average-to-qualified extent of preparation to address both pediatric and adult diversity issues, might reflect the existing larger emphasis on information and clinical resources

on ethnically diverse child groups than on adult groups (Hammer, 2012).

Nonetheless, our results are consistent with the scant evidence and professional literature that highlight the curricular limitations in academic and clinical preparation related to minorities and the urgent need to implement innovative programmatic changes that would minimize such educational deficiencies in the United States, particularly on minority adults (Centeno, 2009, 2015; Hammer, 2012; Horton-Ikard, Munoz, Thomas-Tate, & Keller-Bell, 2009; Stockman, Boulton, & Robinson, 2004). Academic accreditation standards in the United States mandate professional training programs to include curricular content on the cultural and linguistic factors in communication disorders (Council on Academic Accreditation, 2017). However, these standards offer general guidelines that do not specify the amount or content to include in coursework or clinical practica on adult minority populations. Academic program administrators are interested in having access

to specific educational strategies and content that would assist them in the design of appropriate curricular offerings to address educational gaps on minorities in professional preparation (Stockman et al., 2004).

Deficiencies in professional training and resources to optimally serve minority adults with neurogenic communication impairments may be a result of the dearth of suitably trained faculty and relevant research that would generate the evidential and conceptual bases to support classroom and clinical instruction as well as diagnostic and therapeutic product development (Centeno, 2015; Harris, 2018; Payne, 2014). Respondents, albeit minimally prepared with service skills for multiethnic adult populations, received more exposure to generalized training on service to minority adults with less emphasis on service training for bilingual speakers. The training difference might stem from limited understanding of how bilingualism may complicate interpreting neurogenic communication disorders in dual-language users as well as from the dearth of research on communicatively impaired bilingual adults with neuropathologies (Centeno, 2015). In addition, despite required clinical training in neurogenic adult communication disorders, often implemented through aphasia management (Garcia, Garrett, Pimentel, & Garcia, 2002), clinical experiences may not involve minority adults. However, when adults from minority groups are included, clinical student experiences due to limited trained faculty and clinical resources might not adequately incorporate the complexities in serving older minority individuals (Centeno, 2015; Wallace, 1997).

That information relevant to Hispanic individuals was the most accessible resource to respondents might be explained by several reasons. Hispanic/Latino(a) individuals may have been a prominent cohort in the respondents' caseloads because Hispanic persons have a high incidence of stroke (Cruz-Flores et al., 2011) and are the largest minority group in the four states where respondents were recruited (United States Census Bureau, 2014). In future investigations, as discussed later, it would be useful to explore if resource availability depends on the extent of diversity or the largest minority adult group in the area.

Although respondents were moderately motivated to participate in Continuing Education opportunities to enhance their work with both minority adults and bilingual adults, they showed the highest interest in having access to appropriate intervention and testing materials, followed by other resources (i.e., journal articles and other publications on minority adults or bilingualism, expert consultants from ASHA or other organizations, and training

in interpreter-assisted services to serve bilingual clients). These findings are in line with ASHA health care personnel data. ASHA-certified S-LPs, when serving CLD clients in health care environments, frequently use cultural brokers or interpreters, modified assessment strategies, and referral to bilingual service providers (ASHA, 2013b). These results are consistent with the critical shortage in the evaluation and intervention resources to realistically work with communicatively impaired adults from diverse backgrounds (Harris, 2018; Kiran & Roberts, 2012; Muñoz, 2012) and the frequent necessity to work with interpreters in multilingual CLD health care settings (Isaac, 2005).

In sum, our findings, in contrast to earlier results (i.e., ASHA, 2011, 2013b; Wallace, 1997; Wiener, Obler, & Taylor-Sarno, 1995), provide specific evidential insights on the needs in the clinical management of the growing ethnoracially mixed communicatively impaired adult cohorts in U.S. neurorehabilitation services. Particularly, when services with minority adults as a whole and bilingual speakers in neurorehabilitation are compared, practitioners are minimally trained to serve both groups and are interested in post-graduate professional development opportunities and resources that would improve their competencies to effectively work with minority and bilingual adults with neurogenic communication disabilities in multiethnic neurorehabilitation services. Next, we extrapolate the implications of these findings to the highly diverse Canadian rehabilitative scenario to further exemplify the impact of ethnogeriatric world trends on speech-language pathology neurorehabilitation services.

Implications for Adult Neurorehabilitation Services in Diverse High-Migration World Regions: Canada as an Illustration

Our findings are consistent with international multidisciplinary efforts, including evidence from speech-language pathology, that highlight target educational, research, and clinical areas and strategies to improve the clinical management of ethnically diverse neurologically impaired adult caseloads, such as individuals with communication impairments (Altarriba & Kazanas, 2017; Ansaldo et al., 2008; Armstrong et al., 2015; Brewer et al., 2015; Centeno, 2015; Hersh et al., 2015; Norris et al., 2014; Penn et al., 2017; Rose et al., 2014). Our findings have highlighted remedial areas with great relevance to adult neurorehabilitation services in other high-migration multiethnic regions, particularly because vulnerability to age-related health concerns, including neuropathologies, is high in multiethnic environments (Prince et al., 2015). Disability disproportionately affects older people, people living in poverty, Indigenous individuals (e.g., First Nations,

Inuit, and Métis in Canada), refugees, and migrants (Babulal et al., 2019; Centeno, 2017; Petrasek MacDonald, Ward, & Halseth, 2018; WHO, 2015).

Canada is a distinctive example of a hyperdiverse context with growing demands in multiethnic-multilingual adult neurorehabilitation services. Canada, a richly diverse country with large First Nations, Inuit, and Métis populations and immigrant groups (Kay Raining-Bird, 2011, 2014; Statistics Canada, 2018), is the only western country ranked among the 20 most diverse countries in the world (Morin, 2013). Migrant populations in Canada continue to steadily increase to represent a growing percentage of the country's total population. Nearly one in two Canadians could be an immigrant or the child of an immigrant by 2036 (Statistics Canada, 2017). Canada constitutes one of the two largest refugee resettlement countries in the world (International Organization for Migration, 2017). By 2030, about 28% of the Canadian population will be minorities (Sheets & Gallagher, 2013). Reflecting ethnic diversity, 5.8 million individuals in Canada (17.5% of the population) speak at least two languages at home (Statistics Canada, 2019). Regarding older adults, seniors are expected to comprise around 23% to 25% of the population by 2036 and around 24% to 28% in 2061 (Statistics Canada, 2016). Ethnoracial minorities are estimated to be prominently represented in the expanding Canadian geriatric populations as local diversity grows and extensively incoming migration continues (Statistics Canada, 2018).

There is general consensus about the paucity in the literature on age-related neurological complications in Canadian populations, particularly in minority elders (Chiu, Austin, Manuel, & Tu, 2010; Khan, Kobayashi, Lee, & Vang, 2015; Krueger et al., 2015; Petrasek MacDonald et al., 2018). In fact, despite great world ethnoracial diversity, there are substantial gaps in the international scientific literature regarding the impact of ethnic and racial factors in age-related neuropathologies (Babulal et al., 2019; Centeno et al., 2020; Ellis, 2009). However, the limited Canadian health data available highlight valuable trends for neurorehabilitation policy and services. With the country's population aging, stroke prevalence is expected to increase between 62% and 79% from 2013 to 2038 (Krueger et al., 2015), especially for people who identify as First Nations, Inuit, or Métis (Smylie et al., 2018). The prevalence of stroke-related disabilities, including aphasia, is estimated to increase (Dickey et al., 2010). Although cardiovascular risk profiles differ among Canadian ethnic groups (Chiu et al., 2010), cardiovascular disease disproportionately affects 7.1% of First Nations, Inuit, and Métis adults relative to 5.0% of the general Canadian population (Foulds, Bredin, & Warburton,

2018). In terms of dementia, while the rates of dementia have been increasing more rapidly among Canadian First Nations, Inuit, and Métis groups compared to the general population, dementia onset has been reported to occur earlier in First Nations, Inuit, and Métis adults (for a review, see Petrasek MacDonald et al., 2018). These epidemiological and demographic trends in the extensively diverse Canadian population, as in similarly growing hyperdiverse geriatric contexts (e.g., Nichols et al., 2019; Norris et al., 2014), will require a fully prepared speech-language pathology workforce with the necessary professional training and resource armamentarium to meet the clinical needs of expanding neuro-compromised multiethnic elder caseloads. While there is valuable evidence on professional assessments of services for communicatively disordered Canadian CLD caseloads, these studies, however, have either focused on children or reported consolidated child and adult data (Ball & Lewis, 2011; D'Souza et al., 2012; Kerr, Guildford, & Kay-Raining Bird, 2003).

Limitations of the Study

Further investigations are necessary to refine and extend the preliminary findings of the current study. A larger investigation with a national respondent cohort consisting of S-LPs from more racially and geographically diverse backgrounds who work with minority adults may be expected to yield additional insights. Additionally, because the terms *bilingual* and *minority* may not have been distinct and different in the minds of the respondents and, in turn, conflated in the responses, a more detailed survey with more items created to specify differences between these two categories will be valuable. Combined with efforts to enhance the response rate, a national respondent cohort and a longer, more detailed survey may be expected to yield a more extensive, fine-grained response corpus. Similarly, exploring service differences between rural and urban contexts would be helpful to gauge professional and clinical realities in adult neurorehabilitation (see Winstein et al., 2016).

Also, separate studies to examine population-specific and disorder-specific aspects in clinical management and outcomes may uncover additional service issues among the various minority adult groups and among different acquired cognitive-linguistic and feeding disorders encountered in CLD neurorehabilitation adult caseloads. Finally, given the high diversity in the aging population worldwide, international collaborative research efforts that apply similar research methodologies to assess service provision in local multiethnic adult neurorehabilitation caseloads will produce valuable evidence. These efforts will allow the systematic comparison of similarities and differences

to generate international and local remedial strategies to address the needs of the rapidly increasing ethnogeriatric neurorehabilitation caseloads across the world (Bennett et al., 2017; Centeno, 2017; Johnson, Onuma, Owolabi, & Sachdev, 2016; WHO, 2019).

Future Directions

Demographic and neuroepidemiological data highlight a growing need for evidence-based, culturally responsive clinical services for the increasing numbers of communicatively impaired adults in ethnoracially diverse neurorehabilitation services worldwide. A broadly based action plan with concerted strategies, developed by professional, academic, clinical, and administrative stakeholders in collaboration with community leaders, is urgently needed to target deficiencies in professional education, research, and service delivery for this expanding population (Centeno, 2015, 2017; Centeno, Kiran, & Armstrong, 2020; Penn et al., 2017; Siyambalapatiya & Davidson, 2015). Ideally, the input from community leaders combined with the expertise of program accrediting officers, academics, researchers, and practitioners, particularly in CLD neurorehabilitation services, should inform all such stakeholder initiatives. Additionally, interprofessional collaborations with practitioners who work with neurologically disabled multiethnic adult caseloads could further enhance efforts to undertake targeted research and programs designed to improve professional education and to develop appropriate clinical strategies and service delivery (Miller et al., 2010; Winstein et al., 2016).

Critically in the strategic plans, the rigorous recruitment to enlarge the pool of practitioners and researchers who work with multiethnic adult populations has paramount importance. In terms of practitioners, membership in professional speech-language organizations may not represent the ethnolinguistic diversity of the country in some situations (Centeno, 2015; Siyambalapatiya & Davidson, 2015), but it may be linguistically diverse in other world regions. For example, ASHA membership only includes 6% clinicians who consider themselves to be bilingual and 8% who are minority individuals (ASHA, 2019, 2020). However, in Canada, where there are two official languages (i.e., English and French), our literature review suggests that bilingual S-LPs may outnumber monolingual S-LPs. Three hundred respondents (78.1%) working with linguistically diverse clients in Canada reported to know two or more languages (D'Souza et al., 2012).

Regarding the research workforce, the critical shortage of investigators with expertise in neurogenic communication disorders in minority adults is another imperative issue

to address (Centeno, 2015; Harris, 2018; Payne, 2014). Targeted research is needed to support the evidential bases for the development of educational content and clinical services for communicatively impaired adults from CLD backgrounds. Despite disproportionately large incidence and prevalence of stroke, dementia, and other neurological complications resulting in communication and feeding disorders in multiethnic adult populations, individuals from these groups are inadequately, or infrequently, sampled in adult-neurogenic research (Chin et al., 2011; Ellis, 2009; Petrsek MacDonald et al., 2018). A situation that limits the external validity of the findings and their generalization to ethnoracially mixed adult populations (Harris & Fleming, 2009). To populate the specialized clinical and investigative pools, students' mentored exposure to the clinical needs and research pertinent to ethnoracially diverse adult neurorehabilitation groups, an approach similar to the strategies used in biomedical research to increase the number of minority investigators (Ognibene, Gallin, Baum, Wyatt, & Gottesman, 2016; Valentine & Collins, 2015), could be a strategy to stimulate interest in clinical and research careers in multicultural adult neurorehabilitation among speech-language pathology students (see also ASHA, 2015; McNeil et al., 2013).

All in all, our preliminary findings provide important impetus for additional future research and remedial strategies to meet the clinical demands of the increasing ethnogeriatric groups in neurorehabilitation across the world. These undertakings are in line with world and local policies to strengthen and bring parity to health care in vulnerable populations, including increasing multiethnic aging populations in neurorehabilitation (Agency for Healthcare Research and Quality, 2020; Krasnik et al., 2018; United Nations, 2017; WHO, 2015; Wilk et al., 2018). Global and local demographic-neuroepidemiological scenarios highlight the urgency of these efforts.

References

- Agency for Healthcare Research and Quality. (2020). *Priority populations*. Retrieved from <https://www.ahrq.gov/priority-populations/index.html>
- Altarriba, J., & Kazanas, S. A. (2017). Neurorehabilitation with Hispanic/Latino populations: Psychological perspectives on interprofessional communication. *Perspectives of the ASHA Special Interest Groups (SIG 2)*, 2(2), 132–141. doi:10.1044/persp2.SIG2.132
- American Speech-Language-Hearing Association. (2011). *2011 membership survey. CCC-SLP summary report: Number and types of responses*. Retrieved from <https://www.asha.org/uploadedFiles/2011-Membership-Survey-CCC-SLP-Summary-Report.pdf>
- American Speech-Language-Hearing Association. (2013a). *ASHA SLP health care survey 2013: Caseloads characteristics*. Retrieved from <https://www.asha.org/uploadedFiles/2013-SLP-Health-Care-Survey.pdf>
- American Speech-Language-Hearing Association. (2013b). *SLP health care survey: Number and type of responses*. Retrieved from <https://www.asha.org/uploadedFiles/2013-SLP-Health-Care-Survey-Summary-Report.pdf>

- American Speech-Language-Hearing Association. (2015, August). A closer look at the PhD faculty workforce: Will there be enough PhDs in colleges and universities to meet the teaching and scientific demands of the discipline? Data from ASHA member and affiliate counts provide some insight. *The ASHA Leader*, 20(8). doi:10.1044/leader.AAG.20082015.32
- American Speech-Language-Hearing Association. (2019). *ASHA summary membership and affiliation counts, year-end 2018*. Retrieved from <https://www.asha.org/uploadedFiles/2018-Member-Counts.pdf>
- American Speech-Language-Hearing Association. (2020). *Demographic profile of ASHA members providing bilingual services, year-end 2019*. Retrieved from <https://www.asha.org/uploadedFiles/Demographic-Profile-Bilingual-Spanish-Service-Members.pdf>
- Ansaldo, A. I., Marcotte, K., Scherer, L., & Raboyeau, G. (2008). Language therapy and bilingual aphasia: Clinical implications of psycholinguistic and neuroimaging research. *Journal of Neurolinguistics*, 21, 539–557. doi:10.1016/j.jneuroling.2008.02.001
- Armstrong, E., Hersh, D., Hayward, C., & Fraser, J. (2015). Communication disorders after stroke in Aboriginal Australians. *Disability and Rehabilitation*, 37, 1462–1469. doi:10.3109/09638288.2014.972581
- Babulal, G. M., Quiroz, Y. T., Albensi, B. C., Arenaza-Urquijo, E., Astell, A. J., Babiloni, C., ... O'Bryant, S. E. (2019). Perspectives on ethnic and racial disparities in Alzheimer's disease and related dementias: Update and areas of immediate need. *Alzheimer's & Dementia*, 15, 292–312. doi:10.1016/j.jalz.2018.09.009
- Balcazar, F. (2010). Introduction: Examining the nexus of race, culture, and disability. In F. E. Balcazar, Y. Suarez-Balcazar, T. Taylor-Ritzler, & C. B. Keys (Eds.), *Race, culture and disability: Rehabilitation science and practice* (pp. 1–11). Sudbury, MA: Jones & Bartlett Learning.
- Ball, J., & Lewis, M. (2011). "An altogether different approach": Roles of speech-language pathologists in supporting Indigenous children's language development. *Canadian Journal of Speech-Language Pathology and Audiology*, 35, 144–158.
- Bennett, M., Cartwright, J., & Young, J. (2017). Is the speech-language pathology profession prepared for an ageing population? An Australian survey. *International Journal of Speech-Language Pathology*, 21, 153–162. doi:10.1080/17549507.2017.1413135
- Beveridge, M. E. L., & Bak, T. H. (2011). The languages of aphasia: Bias and diversity. *Aphasiology*, 25, 1451–1468. doi:10.1080/02687038.2011.624165
- Brewer, K. M., McCann, C. M., Worrall, L. E., & Harwood, M. L. N. (2015). New Zealand speech-language therapists' perspectives on services for Māori with aphasia. *Speech, Language, and Hearing*, 18, 140–147. doi:10.1179/2050572814Y.0000000060
- Brook, G. (2015). *SLP health care survey report: Caseload characteristics trends 2005–2015*. Retrieved from the American Speech-Language-Hearing Association website: <https://www.asha.org/uploadedFiles/2015-SLP-Health-Care-Survey-Caseload-Trends.pdf>
- Centeno, J. G. (2009). Issues and principles in service delivery to communicatively impaired minority bilingual adults in neurorehabilitation. *Seminars in Speech and Language*, 30, 139–152. doi:10.1055/s-0029-1225951
- Centeno, J. G. (2015). Assessing services with communicatively impaired bilingual adults in culturally and linguistically diverse neurorehabilitation programs. *Journal of Communication Disorders*, 58, 58–73. doi:10.1016/j.jcomdis.2015.10.005
- Centeno, J. G. (2017). Guest Editor's column: Clinical management of communicatively-impaired adult neurorehabilitation caseloads in a diverse aging world. *Perspectives of the ASHA Special Interest Groups (SIG 2)*, 2(2), 88–90. doi:10.1044/persp2.SIG2.88
- Centeno, J. G., Ghazi-Saidi, L., & Ansaldo, A. I. (2017). Aphasia in multilingual populations. In I. Papathanasiou & P. Coppens (Eds.), *Aphasia and related neurogenic communication disorders* (2nd ed., pp. 331–350). Burlington, MA: Jones & Bartlett Learning.
- Centeno, J. G., Kiran, S., & Armstrong, E. (2020). Epilogue: Harnessing the experimental and clinical resources to address service imperatives in multiethnic aphasia caseloads. *Aphasiology*, 34(11), 1451–1455. doi:10.1080/10.1080/02687038.2020.1781421
- Centers for Disease Control and Prevention. (2012). Prevalence of stroke—United States, 2006–2012. *Morbidity and Mortality Weekly Report*, 61, 379–382.
- Chen, C., & Zissimopoulos, J. M. (2018). Racial and ethnic differences in trends in dementia prevalence and risk factors in the United States. *Alzheimer's & Dementia: Translational Research & Clinical Interventions*, 4, 510–520. doi:10.1016/j.trci.2018.08.009
- Chin, A. L., Negash, S., & Hamilton, R. (2011). Diversity and disparity in dementia: The impact of ethnic differences in Alzheimer's disease. *Alzheimer Disease & Associated Disorders*, 25, 187–195. doi:10.1097/WAD.0b013e318211c6c9
- Chiu, M., Austin, P. C., Manuel, D. G., & Tu, J. V. (2010). Comparison of cardiovascular risk profiles among ethnic groups using population health surveys between 1996 and 2007. *Canadian Medical Association Journal*, 182, E301–E310. doi:10.1503/cmaj.091676
- Council on Academic Accreditation. (2017). *Standards for accreditation for graduate education programs in audiology and speech-language pathology*. Retrieved from <https://caa.asha.org/wp-content/uploads/Accreditation-Standards-for-Graduate-Programs.pdf>
- Cruz-Flores, S., Rabinstein, A., Biller, J., Elkind, M. S. V., Griffith, P., Gorelick, P. B., ... Valderrama, A. L. (2011). Racial-ethnic disparities in stroke care: The American experience. A statement for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*, 42, 2091–2116. doi:10.1161/STR.0b013e3182213e24
- Cummings-Vaughn, L. (2017). Demographic trends in aging. In L. Cummings-Vaughn & D. M. Cruz-Oliver (Eds.), *Ethnogeriatrics: Healthcare needs of diverse populations* (pp. 35–49). New York, NY: Springer.
- Dickey, L., Kagan, A., Lindsay, M. P., Fang, J., Rowland, A., & Black, S. (2010). Incidence and profile of inpatient stroke-induced aphasia in Ontario, Canada. *Archives of Physical Medicine and Rehabilitation*, 91, 196–202. doi:10.1016/j.apmr.2009.09.020
- D'Souza, C., Kay-Raining Bird, E., & Deacon, H. (2012). Survey of Canadian speech-language pathology service delivery to linguistically diverse clients. *Canadian Journal of Speech-Language Pathology and Audiology*, 36, 18–39.
- Ellis, C. (2009). Does race/ethnicity really matter in adult neurogenetics? *American Journal of Speech-Language Pathology*, 18, 310–314. doi:10.1044/1058-0360(2009/08-0039)
- Ellis, C., Peach, R. K., Hardy, R. Y., & Lindrooth, R. C. (2017). The influence of race on SLP utilization and costs among persons with aphasia. *Aphasiology*, 31, 1433–1440. doi:10.1080/02687038.2017.1303440
- Federal Interagency Forum on Aging-Related Statistics. (2012). *Older Americans 2012: Key indicators of well-being*. Retrieved from <https://agingstats.gov/docs/PastReports/2012/OA2012.pdf>
- Feigin, V. L., Forouzanfar, M. H., Krishnamurti, R., Mensah, G. A., Connor, M., Bennet, D. A., ... Murray, C. (2014). Global and regional burden of stroke during 1990–2010: Findings from the Global Burden Disease Study 2010. *The Lancet*, 383, 245–255. doi:10.1016/S0140-6736(13)61953-4
- Feigin, V. L., Nichols, E., Alam, T., Bannick, M. S., Beghi, E., Blake, N., ... Vos, T. (2019). Global, regional, and national burden of neurological disorders, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Neurology*, 18, 459–480. doi:10.1016/S1474-4422(18)30499-X
- Fleming, V. B., & Harris, J. L. (2017). Toward identifying mild cognitive impairment in Hispanic and African American adults. *Perspectives of the ASHA Special Interest Groups (SIG 2)*, 2(2), 110–116. doi:10.1044/persp2.SIG2.110
- Foulds, H. J. A., Bredin, S. S. D., & Warburton, D. E. R. (2018). Cardiovascular dynamics of Canadian Indigenous peoples. *International Journal of Circumpolar Health*, 77, 1–12. doi:10.1080/22423982.2017.1421351
- Frohlich, K. L., Ross, N., & Richmond, C. (2006). Health disparities in Canada today: Some evidence and a theoretical framework. *Health Policy*, 79, 132–143. doi:10.1016/j.healthpol.2005.12.010
- Garcia, J. M., Garrett, K. L., Pimentel, J. T., & Garcia, R. G. (2002). Clinical services for aphasia: A survey of university clinics. *Aphasiology*, 16, 715–726. doi:10.1080/02687030143000852
- Hammer, C. S. (2012). Do demographic and cultural differences exist in adulthood? *American Journal of Speech-Language Pathology*, 21, 181–182. doi:10.1044/1058-0360(2012/ed-03)
- Harris, J. L. (2018). Multicultural and multilingual issues. In L. L. LaPointe & J. A. G. Stierwalt (Eds.), *Aphasia and related neurogenic language disorders* (5th ed., pp. 55–64). New York, NY: Thieme.
- Harris, J. L., & Fleming, V. B. (2009). Toward model-driven interventions for African-Americans with cognitive-communicative disorders. *Seminars in Speech and Language*, 30, 207–216. doi:10.1055/s-0029-1225957

- Hersh, D., Armstrong, E., Panak, V., & Coombes, J. (2015). Speech-language pathology practices with indigenous Australians with acquired communication disorders. *International Journal of Speech-Language Pathology, 17*, 74–85. doi:10.3109/17549507.2014.923510
- Hinckley, J. J., Hasselkus, A., & Ganzfried, E. (2013). What people living with aphasia think about the availability of aphasia resources. *American Journal of Speech-Language Pathology, 22*, S310–S317. doi:10.1044/1058-0360(2013)12-0090
- Horton-Ikard, R., Munoz, M. L., Thomas-Tate, S., & Keller-Bell, Y. (2009). Establishing a pedagogical framework for the multicultural course in communication sciences and disorders. *American Journal of Speech-Language Pathology, 18*, 182–196. doi:10.1044/1058-0360(2008)07-0086
- Howard, G., & Goff, D. C. (2012). Population shifts and the future of stroke: Forecasts of the future burden of stroke. *Annals of the New York Academy of Sciences, 1268*, 14–20. doi:10.1111/j.1749-6632.2012.06665.x
- Howard, G., Safford, M. M., Moy, C. S., Howard, V., Kleindorfer, D. O., Unverzagt, F. W., ... Cushman, M. (2017). Racial differences in the incidence of cardiovascular risk factors in older Black and White adults. *Journal of the American Geriatrics Society, 65*, 83–90. doi:10.1111/jgs.14472
- Humes, K. R., Jones, N. A., & Ramirez, R. R. (2011). *Overview of race and Hispanic origin: 2010. 2010 Census Briefs – C2010BR-02*. Washington, DC: U.S. Census Bureau. <https://www.census.gov/library/publications/2011/dec/c2010br-02.html>
- International Organization for Migration. (2017). *World migration report 2018*. New York, NY: International Organization for Migration. https://www.iom.int/sites/default/files/country/docs/china/r5_world_migration_report_2018_en.pdf
- Isaac, K. M. (2005). Managing linguistic diversity in the clinic: Interpreters in speech-language pathology. In M. J. Ball (Ed.), *Clinical sociolinguistics* (pp. 265–280). Malden, MA: Blackwell.
- Johnson, W., Onuma, O., Owolabi, M., & Sachdev, S. (2016). Stroke: A global response is needed. *Bulletin of the World Health Organization, 94*, 634–634A. doi:10.2471/BLT.16.181636
- Kay-Raining Bird, E. (2011). Health, education, language, dialect, and culture in First Nations, Inuit, and Métis communities in Canada: An overview. *Canadian Journal of Speech-Language Pathology and Audiology, 35*, 110–124.
- Kay-Raining Bird, E. (2014). A resource kit: To assist speech-language pathologists and audiologists in providing informed services to First Nations, Inuit, and Métis people. *Canadian Journal of Speech-Language Pathology and Audiology, 38*, 238–250.
- Kerr, M. A., Guildford, S., & Kay-Raining Bird, E. (2003). Standardized language test use: A Canadian survey. *Journal of Speech-Language Pathology and Audiology, 27*, 10–28.
- Khan, M., Kobayashi, K., Lee, S. M., & Vang, Z. (2015). (In)visible minorities in Canadian health data and research. *Population Change and Lifecourse Strategic Knowledge Cluster Discussion Paper Series, 3*(1), 1–33.
- Kiran, S., & Roberts, P. M. (2012). What do we know about assessing language impairment in bilingual aphasia. In M. R. Gitterman, M. Goral, & L. K. Obler (Eds.), *Aspects of multilingual aphasia* (pp. 35–50). Clevedon, United Kingdom: Multilingual Matters.
- Koton, S., Schneider, A. L. C., Rosamond, W. D., Shahar, E., Sang, Y., Gottesman, R. F., & Coresh, J. (2014). Stroke incidence and mortality trends in US communities, 1987 to 2011. *Journal of the American Medical Association, 312*, 259–268. doi:10.1001/jama.2014.7692
- Krasnik, A., Bhopal, R. S., Gruer, L., & Kumanika, S. K. (2018). Advancing a unified, global effort to address health disadvantages associated with migration, ethnicity, and race. *European Journal of Public Health, 28*(Suppl.), 1–2. doi:10.1093/eurpub/cky046
- Krueger, H., Koot, J., Hall, R. E., O'Callaghan, C., Bayley, M., & Corbett, D. (2015). Prevalence of individuals experiencing the effects of stroke in Canada: Trends and projections. *Stroke, 46*, 2226–2231. doi:10.1161/STROKEAHA.115.009616
- Matthews, K. A., Xu, W., Gaglioti, A. H., Holt, J. B., Croft, J. B., Mack, D., & McGuire, L. C. (2019). Racial and ethnic estimates of Alzheimer's disease and related dementias in the United States (2015–2060) in adults aged ≥ 65 years. *Alzheimer's & Dementia, 15*, 17–24. doi:10.1016/j.jalz.2018.06.3063
- McNeil, M. R., Nunez, L., Armiento-DeMaria, M. T., Chapman, K. L., DiLollo, A., Ferraro, J. A., ... Robertson, S. (2013). *Strategic plan to increase the student pipeline and workforce for PhD researchers and faculty researchers*. Retrieved from the American Speech-Language-Hearing Association website: <https://www.asha.org/uploadedFiles/Report-2013-AAB-PhD-Report-Strategic-Plan.pdf>
- Miller, E. L., Murray, L., Richards, L., Zorowitz, R. D., Bakas, T., Clark, P., & Billinger, S. A. (2010). Comprehensive overview of nursing and interdisciplinary rehabilitation care of the stroke patient: A scientific statement from the American Heart Association. *Stroke, 41*, 2402–2448. doi:10.1161/STR.0b013e3181e7512b
- Morgenstern, L. B., & Kissela, B. M. (2015). Stroke disparities: A large global problem that must be addressed. *Stroke, 46*, 3560–3563. doi:10.1161/STROKEAHA.115.009533
- Morin, R. (2013, July). The most (and least) culturally diverse countries in the world. *FactTanks: News in numbers*. Retrieved from <http://pewrsr.ch/13MQHbT>
- Mozaffarian, D., Benjamin E. J., Go, A. S., Arnett, D. K., Blaha, M. J., Cushman, M., ... Turner M. B. (2016). Heart disease and stroke statistics—2016 update: A report from the American Heart Association. *Circulation, 133*, e38–e360. doi:10.1161/CIR.0000000000000350
- Mulvahill, J. S., & Cummings-Vaughn, L. (2017). Epidemiology of aging: Racial/ethnic specific disease prevalence. In L. Cummings-Vaughn & D. M. Cruz-Oliver (Eds.), *Ethnogeriatrics: Healthcare needs of diverse populations* (pp. 115–144). New York, NY: Springer.
- Muñoz, M. L. (2012). The clinical management of anomia in bilingual speakers of Spanish and English. In M. R. Gitterman, M. Goral, & L. K. Obler (Eds.), *Aspects of multilingual aphasia* (pp. 69–88). Clevedon, United Kingdom: Multilingual Matters.
- National Institute of Neurological Disorders and Stroke. (2020). *NINDS stroke disparities*. Retrieved from <https://www.ninds.nih.gov/Current-Research/Focus-Tools-Topics/Health-Disparities>
- Nichols, E., Szoek, C. E. I., Vollset, S. E., Abbasi, N., Abd-Allah, F., Abdela, J., ... Murray, C. J. L. (2019). Global, regional, and national burden of Alzheimer's disease and other dementias, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Neurology, 18*, 88–106. doi:10.1016/S1474-4422(18)30403-4
- Norris, M., Jones, F., Kilbride, C., & Victor, C. (2014). Exploring the experience of facilitating self-management with minority stroke survivors: A qualitative study of therapists' perceptions. *Disability and Rehabilitation, 36*, 2252–2261. doi:10.3109/09638288.2014.904936
- Obviagele, B., Goldstein, L. B., Higashida, R. T., Howard, V. J., Claiborne Johnston, S., Khavjou, O. A., ... Trogdon, J. G. (2013). Forecasting the future of stroke in the United States: A policy statement from the American Heart Association and American Stroke Association. *Stroke, 44*, 2361–2375. doi:10.1161/STR.0b013e31829734f2
- Ognibene, F. P., Gallin, J. I., Baum, B. J., Wyatt, R. G., & Gottesman, M. M. (2016). Outcomes from the NIH clinical research training program: A mentored research experience to enhance career development of clinician-scientists. *Academic Medicine, 91*, 1684–1690. doi:10.1097/ACM.0000000000001245
- Ortman, J. M., Velkoff, V. A., & Hogan, H. (2014). *An aging nation: The older population in the United States*. Population estimates and projections. Retrieved from United States Census Bureau website: <https://www.census.gov/prod/2014pubs/p25-1140.pdf>
- Payne, J. C. (2014). *Adult neurogenic language disorders: Assessment and treatment. A comprehensive ethnobiological approach* (2nd ed.). San Diego, CA: Plural.
- Penn, C., Armstrong, B., Brewer, K., Purves, B., McAllister, M., Hersh, D., ... Lewis, A. (2017). Decolonizing speech-language pathology practice in acquired neurogenic disorders. *Perspectives of the ASHA Special Interest Groups (SIG 2)*, 2(2), 91–99. doi:10.1044/persp2.SIG2.91
- Petrsek MacDonald, J., Ward, V., & Halseth, R. (2018). *Alzheimer's disease and related dementias in Indigenous populations in Canada: Prevalence and risk factors*. Retrieved from the National Collaborating Centre for Aboriginal Health: <https://www.ccnca-nccah.ca/docs/emerging/RPT-Alzheimer-Dementia-MacDonald-Ward-Halseth-EN.pdf>
- Pew Research Center. (2015). *Modern immigration wave brings 59 million to U.S., driving population growth and change through 2065: Views of immigration's impact on U.S. society mixed*. Retrieved from <https://www.pewresearch.org/hispanic/2015/09/28/modern-immigration-wave-brings-59-million-to-u-s-driving-population-growth-and-change-through-2065/>
- Prince, M. J., Wu, F., Guo, Y., Gutierrez Robledo, L. M., O'Donnell, M., Sullivan, R., & Yusuf, S. (2015). The burden of disease in older people and implications for health policy and practice. *The Lancet, 385*, 549–562. doi:10.1016/S0140-6736(14)61347-7

- Robnett, R. H., Brossoie, N., & Chop, W. C. (2020). *Gerontology for the health care professional* (4th ed.). Burlington, MA: Jones & Bartlett Learning.
- Rose, M., Ferguson, A., Power, E., Togher, L., & Worrall, L. (2014). Aphasia rehabilitation in Australia: Current practices, challenges and future directions. *International Journal of Speech-Language Pathology, 16*, 169–180. doi:10.3109/17549507.2013.794474
- Ryan, C. (2013). *Language use in the United States: 2011. American Community Survey Reports*. Retrieved from the United States Census Bureau website: <https://www2.census.gov/library/publications/2013/acs/acs-22/acs-22.pdf>
- Sheets, D. J., & Gallagher, E. M. (2013). Aging in Canada: State of the art and science. *The Gerontologist, 53*, 1–8. doi:10.1093/geront/gns150
- Simmons-Mackie, N., Threats, T. T., & Kagan, A. (2005). Outcome assessment in aphasia: A survey. *Journal of Communication Disorders, 38*, 1–27. doi:10.1016/j.jcomdis.2004.03.007
- Siyambalapatiya, S., & Davidson, B. (2015). Managing aphasia in bilingual and culturally and linguistically diverse individuals in an Australian context: Challenges and future directions. *Journal of Clinical Practice in Speech Language Pathology, 17*(1), 13–19.
- Smylie, J., O'Brien, K., Xavier, C. G., Anderson, M., McKnight, C., Downey, B., & Kelaher, M. (2018). Primary care intervention to address cardiovascular disease medication health literacy among Indigenous peoples: Canadian results of a pre-post-test-design study. *Canadian Journal of Public Health, 109*, 117–127. doi:10.17269/s41997-018-0034-9
- Statistics Canada. (2016). *An aging population*. Retrieved from <https://www150.statcan.gc.ca/n1/pub/11-402-x/2010000/chap/pop/pop02-eng.htm>
- Statistics Canada. (2017). *Study: A look at immigration, ethnocultural diversity and languages in Canada up to 2036, 2011 to 2036*. Retrieved from <https://www150.statcan.gc.ca/n1/daily-quotidien/170125/dq170125b-eng.htm>
- Statistics Canada. (2018). *Ethnic diversity and immigration*. Retrieved from <https://www150.statcan.gc.ca/n1/pub/11-402-x/2011000/chap/imm/imm-eng.htm>
- Statistics Canada. (2019). *Linguistic characteristics of Canadians*. Retrieved from <https://www12.statcan.gc.ca/census-recensement/2011/as-sa/98-314-x/98-314-x2011001-eng.cfm>
- Stockman, I. J., Boulton, J., & Robinson, G. (2004, July). Multicultural issues in academic and clinical education: A cultural mosaic. *The ASHA Leader, 9*(13), 6–22. doi:10.1044/leader.FTR5.09132004.6
- Threats, T. (2005). Cultural sensitivity in health-care settings. *Perspectives on Communication Disorders and Sciences in Culturally and Linguistically Diverse Populations, 12*(3), 3–6. doi:10.1044/cds12.3.3
- Turkstra, L. S., Norman, R., Whyte, J., Dijkers, M. P., & Hart, T. (2016). Knowing what we're doing: Why specification of treatment methods is critical for evidence-based practice in speech-language pathology. *American Journal of Speech-Language Pathology, 25*, 164–171. doi:10.1044/2015_AJSLP-15-0060
- United Nations. (2017). *Transforming our world: The 2030 agenda for sustainable development*. Retrieved from <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>
- United Nations, Department of Economic and Social Affairs, Population Division. (2017). *World population ageing 2017 - Highlights*. Retrieved from https://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2017_Highlights.pdf
- United Nations High Commissioner for Refugees. (2019). *Global trends: Forced displacement in 2018*. Retrieved from <https://www.unhcr.org/5d08d7ee7.pdf>
- United States Census Bureau. (2012). *U.S. census projections show a slower growing, older, more diverse nation a half century from now*. Retrieved from <https://www.census.gov/newsroom/releases/archives/population/cb12-243.html#:~:text=12%2C%202012-.U.S.%20Census%20Bureau%20Projections%20Show%20a%20slower%20growing%2C%20older%2C%20more,by%20the%20U.S.%20Census%20Bureau.>
- Uomoto, J. M., & Loughlin, J. (2016). Neuroepidemiology and racial disparities in neurorehabilitation care. In J. M. Uomoto (Ed.), *Multicultural rehabilitation: Clinical principles for rehabilitation professionals* (pp. 3–24). New York, NY: Springer.
- Valantine, H. A., & Collins, F. S. (2015). National Institutes of Health addresses the science of diversity. *Proceedings of the National Academy of Sciences, 112*, 12240–12242. doi:10.1073/pnas.1515612112
- Wallace, G. L. (1997). An introduction to multicultural neurogenetics. In G. L. Wallace (Ed.), *Multicultural neurogenetics: A resource for speech-language pathologists providing services to neurologically impaired adults from culturally and linguistically diverse backgrounds* (pp. 3–20). San Antonio, TX: Communication Skill Builders.
- Wiener, D., Obler, L. K., & Taylor-Sarno, M. (1995). Speech/language management of the bilingual aphasic in a U.S. urban rehabilitation hospital. In M. Paradis (Ed.), *Aspects of bilingual aphasia* (pp. 37–56). Tarrytown, NY: Elsevier.
- Wilk, P., Cooke, M., Cooke, S., Stranges, S., & Maltby, A. (2018). Reducing health disparities among indigenous populations: The role of collaborative approaches to improve public health systems. *International Journal of Public Health, 63*, 1–2. doi:10.1007/s00038-017-1028-8
- Winstein, C. J., Stein, J., Arena, R., Bates, B., Cherner, L. R., Cramer, S. C., ... Zorowitz, R. D. (2016). Guidelines for adult stroke rehabilitation and recovery: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke, 47*, e98–e169. doi:10.1161/STR.0000000000000098
- World Health Organization. (2015). *WHO global disability action plan 2014–2021: Better health for all people with disability*. Retrieved from <https://www.who.int/publications/i/item/who-global-disability-action-plan-2014-2021>
- World Health Organization. (2019). *Dementia*. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/dementia>
- Yorkston, K. M., Bourgeois, M. S., & Baylor, C. R. (2010). Communication and aging. *Physical Medicine and Rehabilitation Clinics, 21*, 309–319. doi:10.1016/j.pmr.2009.12.011

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Acknowledgments

The survey investigation reported in this paper was funded by the Office of Multicultural Affairs, American Speech-Language-Hearing Association. Thanks are extended to the survey development consultants in this study, Ana Ines Ansaldo, Patricia Gomeztrejo, Joyce Harris, Ralph Larkin, Claire Penn, Karen Slotnick, and Cara Stein; our data-input assistant, Tamatha Gorman; and the survey respondents.

Disclosures

No conflicts of interest, financial or otherwise, are declared by the authors.

Appendix Survey Questions

Professional Training

18. Use the scale below to indicate the frequency that information on each of the following ethnic/racial groups was discussed in *your coursework* during your professional training:

Never	Infrequently	Sometimes	Frequently	Very frequently
1	2	3	4	5

- a) White 1 2 3 4 5
- b) Hispanic/Latino(a) 1 2 3 4 5
- c) Black (African-American, Caribbean Black, African) 1 2 3 4 5
- d) Asian/Pacific Islander (Filipino, Chinese, Asian Indian, Hawaiian, Samoan, etc.) 1 2 3 4 5
- e) Native American or Alaskan Native 1 2 3 4 5
- f) Other (please specify): _____ 1 2 3 4 5

19. Use the scale below to indicate the frequency that members of each of the following ethnic/racial groups was included in *your clinical caseload* during your professional training:

Never	Infrequently	Sometimes	Frequently	Very frequently
1	2	3	4	5

- a) White 1 2 3 4 5
- b) Hispanic/Latino(a) 1 2 3 4 5
- c) Black (African-American, Caribbean Black, African) 1 2 3 4 5
- d) Asian/Pacific Islander (Filipino, Chinese, Asian Indian, Hawaiian, Samoan, etc.) 1 2 3 4 5
- e) Native American or Alaskan Native 1 2 3 4 5
- f) Other (please specify): _____ 1 2 3 4 5

Service Delivery

22. On the scale below, circle the number that indicates the extent you feel prepared to work with adults from minority groups (*i.e., Hispanics, Asians, African-Americans, etc.*):

None or No extent	Small extent	Moderate extent	Great extent	Very great extent
1	2	3	4	5

23. On the scale below, circle the number that indicates the extent you feel prepared to work with **bilingual adults**:

None or No extent	Small extent	Moderate extent	Great extent	Very great extent
1	2	3	4	5

Suggestions and Modifications

27. On the scale below, circle the number that indicates how satisfied you feel with the amount of information and resources available to enhance speech-language services **with adults from minority groups (i.e., Hispanics, Asians, African-Americans, etc.)**:

Very dissatisfied	Dissatisfied	I don't know	Satisfied	Very satisfied
1	2	3	4	5

28. On the scale below, circle the number that indicates how satisfied you feel with the amount of information and resources available to enhance speech-language services with **bilingual adults**:

Very dissatisfied	Dissatisfied	I don't know	Satisfied	Very satisfied
1	2	3	4	5

30. Of all the bilingual adults with whom you have worked, **circle the group** for which you have had access to the most resources and information (books, journal articles, assessment tools, therapy materials, etc.).

- a) White
- b) Hispanic/Latino(a)
- c) Black (African-American, Caribbean Black, African)
- d) Asian/Pacific Islander (Filipino, Chinese, Asian Indian, Hawaiian, Samoan, etc.)
- e) Native American or Alaskan Native
- f) Other (please specify): _____

33. On the scale below, circle the number that corresponds to the extent of your interest in participating in Continuing Education opportunities related to **adults from minority groups (i.e., Hispanics, Asians, African-Americans, etc.)**:

Not at all interested	Mildly interested	Moderately interested	Quite interested	Extremely interested
1	2	3	4	5

34. On the scale below, circle the number that corresponds to the extent of your interest in participating in Continuing Education opportunities related to **bilingual adults** :

Not at all interested	Mildly interested	Moderately interested	Quite interested	Extremely interested
1	2	3	4	5

35. Use the scale below to indicate your interest in the following professional resources to enhance speech-language services with **adults from minority groups (i.e., Hispanics, Asians, African-Americans, etc.)** :

Not at all interested	Mildly interested	Moderately interested	Quite interested	Extremely interested
1	2	3	4	5

- a) Presentations on minority adults at ASHA conventions 1 2 3 4 5
- b) Conferences on minority adults 1 2 3 4 5
- c) Publications on minority adults 1 2 3 4 5
- d) Linguistically and culturally appropriate tests 1 2 3 4 5
- e) Linguistically and culturally appropriate therapy materials 1 2 3 4 5
- f) College courses on minority adults 1 2 3 4 5
- g) Journal articles on minority adults 1 2 3 4 5
- h) Consultants on minority adults from ASHA or other organizations 1 2 3 4 5
- i) Hands-on clinical training with minority adults 1 2 3 4 5
- j) Other (please specify): _____ 1 2 3 4 5

36. Use the scale below to indicate your interest in the following professional resources to enhance speech-language services with **bilingual adults** :

Not at all interested	Mildly interested	Moderately interested	Quite interested	Extremely interested
1	2	3	4	5

- a) Presentations on bilingual adults at ASHA conventions 1 2 3 4 5
- b) Conferences on bilingual adults 1 2 3 4 5
- c) Publications on bilingualism 1 2 3 4 5
- d) Formal tests in the client’s native language 1 2 3 4 5
- e) Linguistically and culturally appropriate therapy materials 1 2 3 4 5

f) College courses on bilingual adults	1	2	3	4	5
g) Journal articles on bilingual adults	1	2	3	4	5
h) Learning a foreign language	1	2	3	4	5
i) Learning how to use an interpreter/translator	1	2	3	4	5
j) Consultants in bilingualism from ASHA or other organizations	1	2	3	4	5