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Working with multilingual aphasia: attitudes and practices among speech and language pathologists in Norway

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ABSTRACT

The growing number of elderly multilingual speakers suffering from strokes and aphasia requires a change in the services of speech and language pathologists (SLPs), who will be serving culturally and linguistically diverse individuals to an increasing extent. Two American studies have shown that a majority of SLPs who work with multilingual adults in the US felt that their academic and clinical training had left them insufficiently prepared for working with multilingual persons with aphasia (MPWAs). This insecurity may have considerable negative consequences for MPWAs and their families. Little is known about the generalizability of these studies; hence the objective of the present study is to investigate whether the US situation is comparable to a European country with different demographics. A web-based questionnaire was administered to SLPs in Norway, examining multiple factors regarding work setting, professional training, clinical tools and procedures, and service delivery issues with MPWAs. Overall, the results are in line with Centeno's, showing that SLPs make sensible decisions to serve MPWAs despite inadequate education programmes, shortcomings in clinical training, and limited clinical resources. The results are discussed in terms of their implications for professional education and the measures needed to minimize present shortcomings in service delivery to MPWAs.

KEYWORDS

Multilingual adults; aphasia; speech and language pathologist (SLP); speech and language service delivery; survey

Introduction

Demographic changes may have repercussions on the organization and delivery of health services, including speech and language therapy. Two such ongoing changes are the increasing number of multilingual persons[1] and the rapidly aging population.

Over half of the world's population is multilingual (Faroqi-Shah, Frymark, Mullen, & Wang, 2010) and the vast majority of the nations of the world have more than one language spoken within its borders (Eberhard et al., 2021). Moreover, the last decades of labor migration, combined with the recent migrant crisis, have led to a rapid growth in the number of individuals speaking more than one language in Europe. Norway adheres to this European trend: there are many indigenous minority groups who speak other languages[2] along with Norwegian, together with increased immigration from other countries. Almost 20% of Norway's total population of approximately 5.4 million inhabitants are immigrants (Statistics Norway, 2021a; 2021b).[3] The number of immigrants in Norway is expected to increase by 40% to 1.4 million by 2045, and to

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[1]We use the term *multilingual* as a synonym to *bilingual* as defined by (Grosjean, 2013), to refer to individuals who use two or more languages (or dialects) in their everyday lives. The two terms will be used interchangeably in the article.

[2]Sami, Kven, Rom, Romani, and Norwegian Sign Language users.

[3]We use the term *immigrants* as defined by Statistics Norway (2021a) as persons with both parents born abroad.

further increase to 1.7 million by 2060. By comparison, the population as a whole is estimated to increase by only 20% by 2040 (Tønnessen et al., 2016). Norwegian-born children of immigrant parents currently to a large extent grow up as simultaneous or successive multilinguals, learning their parents' language(s) as well as Norwegian. This level of multilingualism is a relatively recent development in Norway. The improved economy from 1960 onwards stimulated several waves of large-scale immigration to Norway. From around 1970, immigrant groups – primarily young men – came from Turkey and Pakistan to find employment because workers were in demand in Norway. Towards the end of the 1970s, there was a new wave of immigration, mainly motivated by desire for family reunion. From the middle of the 1980s, there was an increase in asylum seekers, primarily from Iran, Chile, Vietnam and Sri Lanka, and later from the former Yugoslavia. Since the expansion of EU in 2004, Norway has been among the countries in Europe with the greatest labor immigration relative to the number of inhabitants. This has been important for the country's growth and increase in welfare, and workers especially from Poland and the Baltic countries have found their way to Norway. The most recent wave is due to the Syrian crisis, with a large number of refugees from Syria, Afghanistan and Iraq arriving in 2015 (Sandnes, 2017). Currently, the largest immigrant groups in Norway (excluding those from Scandinavian and English-speaking countries) are from Poland, Lithuania, Somalia, Pakistan, Syria, Iraq, and Eritrea (Statistics Norway, 2021a), i.e. mainly speaking Polish, Lithuanian, Somali, Punjabi/Urdu, Arabic, and Tigrinya.

Another important global change is the age distribution of the population. In 2015 the proportion of the world's population aged 60 or older was 12% and it is expected to nearly double to 22% by 2050 (World Health Organization, 2021). More developed countries have the oldest population profiles, making the rapidly ageing population one of the greatest social and economic challenges facing the EU in the years to come (Eurostat, 2019). While the older population (> 65 years) in general is growing, the very old population (> 85 years) is growing at a faster pace than any other age segment of the EU's population. The proportion of people aged 80 years or more in the EU is projected to more than double between 2020 and 2100, from 5.9% to 14.6% (Eurostat, 2021). An equivalent pattern is also evident in Norway, where the number of people above the age of 70 is expected to double within three decades, from the current population of 600,000 to almost 1.2 million by 2050. The number of people who are more than 80 years old will double in an even shorter time – from 220,000 today to 440,000 by 2040 (Tønnessen et al., 2016).

With advancing age follows an increased risk for diseases such as stroke. Whereas the mean age of stroke onset in Norway is 75 years (Fjærtoft et al., 2020), the risk of having a stroke doubles every decade after the age of 55 (Yousufuddin & Young, 2019). Stroke is the third most common cause of death, both in Norway and in the world as a whole (Ellekjær & Selmer, 2007; GBD 2013 Mortality and Causes of Death Collaborators, 2015). Roughly 12,000 people in Norway suffer from strokes each year (Helsedirektoratet, 2019). Studies from the US have shown that individuals from ethnic minorities have more stroke-risk factors, like diabetes and hypertension, higher incidence and prevalence of stroke and also a higher stroke-mortality risk than white Americans (cf. review of Cruz-Flores et al., 2011). Similar findings are reported in studies from different European countries, where stroke risk factors such as hypertension and obesity are suggested as explanations for such differences between people of different ethnicities (e.g. Agyemang et al., 2014; Eastwood et al., 2015; Hajat et al., 2004). Additionally, low socioeconomic status (SES) is often linked to a high incidence of stroke in industrialized countries (Agyemang et al., 2014), and immigration is often connected to low SES, irrespective of the immigrants' SES in their country of origin (OECD Centre for Opportunity and Equality, 2017; Statistics Norway, 2014).

To our knowledge, there are no studies on stroke-related differences between ethnic groups in Norway. However, studies from Sweden – a Scandinavian country relatively similar to Norway in terms of demography and health services – to some extent corroborate the European and American findings (Kahn, Zia, Janzon, & Engstrom, 2004; Nayak, Kahn, & Janzon, 2014). Khan and colleagues found significant differences in stroke incidences by country of origin, and great variation between

different immigrant groups. For instance, immigrants from the former Yugoslavia showed significantly higher incidence when compared to individuals born in Sweden. By contrast, immigrants from Poland showed no such increased risk. The authors suggest that differences between immigrant groups concerning the reasons and circumstances for leaving their country – for instance variation in education level, with resulting differences in the SES – may partially explain the divergence between the groups. SES data were however not available in the study. A later Swedish study comparing stroke incidence for Swedish-born women and immigrant women found no increased risk for immigrants when demographic and SES factors were taken into account (Nayak et al., 2014). According to this study, women with lower SES have a higher incidence of stroke, regardless of immigration status.

Around 30% of all stroke survivors acquire *aphasia* as an effect of the disease (Flowers, Silver, Fang, Rochon, & Martino, 2013). In Norway – where 12,000 people suffer from strokes annually – one may therefore estimate that roughly 4,000 people will be diagnosed with aphasia following stroke each year. Aphasia is an acquired language disorder induced by a focal damage to the language-dominant brain hemisphere that affects some or all language modalities: expression and understanding of speech, reading, and writing (Lesser, 1989). It has profound effects on a person's quality of life and is arguably the most serious possible effect of a stroke (Spaccavento et al., 2014). Language impairment potentially has a tremendous negative impact on the person's opportunities for participation in social activities and professional life, and even more so when left untreated. On a personal and family level, aphasia frequently has a substantial negative impact on the psychological and financial well-being (Hilari & Northcott, 2006). On the societal level, the total cost of stroke is estimated at NOK 7–8 billion per year in Norway (Fjærtoft & Indredavik, 2007). Reintegration into family life, work or school may be hindered by impairments in both oral and written language. Speech and language therapy for people with aphasia has been found to improve functional communication, reading, writing, and expressive language compared to no therapy (Brady, Kelly, Godwin, Enderby, & Campbell, 2016).

In sum, the growing number of multilingual individuals combined with the growing number of elderly people suffering from strokes will undoubtedly lead to an increased number of multilingual persons with aphasia (MPWAs) (Ansaldo & Ghazi Saidi, 2014; Paradis, 2001; Roberts & Kiran, 2007). Over the coming years, the services which speech and language pathologists (SLPs) are required to offer will thus have to adapt to new needs, to serve culturally and linguistically diverse individuals to an increasing extent.

MPWAs constitute an extremely heterogeneous group. There are several aspects of clinical work with MPWAs that are both essential and unique when compared to the needs of monolingual persons with aphasia. The linguistic repertoires of MPWAs before a stroke vary greatly, as do the time and manner of acquisition for their languages. Additionally, the situations in which the different languages were used – and with whom – also differ (Grosjean, 2010). Furthermore, several studies show that symptoms of aphasia can vary across the different languages of a multilingual individual (Fabbro, 2001; Menn et al., 1995; Paradis, 2001). Particularly for multilingual people who acquired both languages early in life, the most common outcome is parallel impairment, i.e. the same extent of impairment in both languages relative to pre-stroke proficiency (Kuzmina et al., 2019). Some multilingual people, however, experience non-parallel impairment, meaning that the different languages are affected differently. Predictions of which language will be less impaired or more fully recovered are thus sometimes uncertain. Taking this heterogeneity into account, it may seem obvious that assessing all the languages of MPWAs is necessary to obtain a valid impression of the linguistic consequences of aphasia in each individual case. Prior studies about Norway (Knoph, 2003) and the US (Paradis, 2004) show that such comprehensive assessment has not always been conducted, although this situation seems to have changed in recent years, at least in the US (Centeno, 2015).

Aphasia rehabilitation often focuses on restoring language and communication abilities. Language rehabilitation of MPWAs has received more attention internationally in the research literature over the past few decades (e.g. Akbari, 2014; Peñaloza & Kiran, 2019). The main goal of treatment

provision for MPWAs is the facilitation of communication abilities in all the languages needed for participation in meaningful life activities. There is no consensus as to which of the languages to select for treatment, or if treatment should be provided in both (or all) languages simultaneously. For MPWAs who usually use two languages every day, treatment of both may be preferable simply to meet their needs. However, this is often a pragmatic question since in many communities, multilingual clinicians who speak more than one of the languages of their multilingual clients are not available (Roger & Code, 2011; Santhanam & Parveen, 2018; Wiener et al., 1995).

In a pilot study, Centeno (2009) showed that a majority of SLPs who worked with multilingual adults in the US felt that their academic and clinical training left them inadequately prepared for assessment and treatment of multilingual persons with aphasia. He therefore conducted a larger study (2015), to measure the extent of training and knowledge possessed by SLPs who work with adult multilingual populations with communication disorders, and also the clinical procedures they employ when they serve these clients. The 2015 survey was a 36-item questionnaire designed using the standard steps in this type of research methodology (i.e. planning, design, review, and revision before administration) (Centeno, 2015, p. 60), and was based on the previously published smaller pilot study (Centeno, 2009). The results from the two studies correspond with each other.

Centeno's questionnaire was sent to 1,000 SLPs in four states with a high density of bilingual persons: California, Florida, New York, and Texas. The response rate was 12.5%. Over 90% of the respondents were female, almost all of them had a Master's degree and 70% had more than 15 years of working experience. Only 20% were bilingual speakers themselves, and 85% of the SLPs worked with bilingual speakers. A striking result was that more than 77% of the respondents reported that they had no to minimal professional preparation during their education to serve bilingual individuals in general. Regarding assessment, the most frequent procedure was collection of information about the person's two languages from the family or from relatives. In addition, collecting connected speech production, assessing English with standardized tests, and working with interpreters were reported as assessment procedures (in order of decreasing frequency). Also, the SLPs relied extensively on family involvement for treatment provision. They would usually choose the language that was most intact following the stroke for treatment. Limited availability of bilingual SLPs, and lack of culturally and linguistically appropriate material for both assessment and treatment were the greatest obstacles reported by the SLPs. Another challenge was that the SLPs often reported lack of sufficient linguistic knowledge of their clients' languages. Such insecurity on the clinicians' part may clearly have considerable negative consequences for MPWAs and their families.

Aims and Research Questions

Despite the increasing international research focus on assessment and treatment of MPWAs (e.g. Ansaldo, Marcotte, Scherer, & Raboyeau, 2008; Paradis, 2004) and Centeno's ground-breaking study from the US (Centeno, 2015), little is known about the assessment and treatment offered to MPWAs by SLPs outside the US.

The objective of the present study is to replicate the study by Centeno (2015), and to investigate whether the situation he described in the US compares to a European country with a different demographic composition and different clinical training from that of the original study. The present study examines the current professional training and clinical practices of SLPs in Norway with regard to multilingualism, and discusses challenges in the services offered to the steadily increasing number of MPWAs in Norway.

The study addresses the following research questions, slightly adapted from Centeno (2015):

1)What conceptual knowledge and hands-on clinical training do SLPs have to work with MPWAs?

2)What are the clinical tools and procedures employed by SLPs when they serve MPWAs?

3)What are the service delivery issues faced by SLPs when working with MPWAs?

4)What are the changes suggested by SLPs to improve the quality and quantity of information that would enhance clinical services with MPWAs?

Methods

A 26-item, web-based questionnaire was administered to SLPs in Norway to examine multiple factors regarding work setting and caseload, conceptual knowledge and clinical training, clinical tools and procedures, service delivery issues, and suggestions to improve clinical work with MPWAs. The project was approved by the Norwegian Centre for Research Data[4] (n.d.). The respondents were informed in writing of the purpose of the survey and implicitly gave their consent to participate by answering the anonymous questionnaire.

Participants

A link to the web-based questionnaire with a request to participate was emailed to all members of the Norwegian Association of Speech and Language Pathologists who were registered with an email address. This is the only association for SLPs in Norway. Student members and retired members were excluded. In total, the request was sent to 704 SLPs.

Survey Instrument

The web-based questionnaire applied in this study was delivered through the IT services provided by the University of Oslo, which ensures complete anonymization and prevents direct or indirect identification of respondents. The questionnaire had four sections focusing on the respondents' background (items 1–7), their professional training and experience (items 8–16), tools and procedures (items 17–19), and challenges and possibilities (items 20–26). The questions excluded from Centeno's (2015) survey were mainly those covering ethnic and racial issues (e.g. "My ethnic/racial background is . . . " (question 3), "Use the scale below to indicate the frequency with which you have worked with adults from the following ethnic/racial groups in the last 5 years" (question 15)). In a Norwegian setting, referring to race or ethnic group in this way is very uncommon – not to say politically incorrect. A further difference between the questionnaires was that the Norwegian questionnaire clearly distinguished between assessment of the majority language on the one hand and assessment of the first language (L1) or other languages on the other, whereas Centeno did not always do this. Additionally, the section on tools and procedures in the Norwegian questionnaire included more items. Other adjustments were included in order to make the items more appropriate for a Norwegian clinical setting. Some of these adjustments were of a technical nature, e.g. naming relevant assessment tools. The survey consisted mainly of closed-ended questions (i.e. multiple choice or yes/no questions), some of which were designed as self-assessments using a five-point Likert rating scale. Additionally, some of the questions included an option for the respondents to add text.

Procedures

The Norwegian Association for Speech and Language Pathologists has 12 regional divisions. An email was sent to the leaders of these divisions, who forwarded it to all their members registered with an email address in January 2016. The email included a cover letter, which explained the rationale of the study, and a link to the web-based questionnaire. The recipients were given a relatively short deadline of two weeks for responding. At the end of the two weeks, we had received only 50 responses and hence an email reminder was sent to all the recipients. At the same time, a reminder about the survey was posted on two Facebook pages: the open, official page of the Norwegian Association of Speech and Language Pathologists (1,000 followers) and a closed Facebook page for the members (380 followers).

[4]Project number 45706.

Analysis

The methods of analysis follow Centeno's (2015) to some extent. In simple closed-end questions like yes/no questions, multiple-choice questions and one-dimensional Likert-scale questions, we use percentages to describe distributions.

Where several items within the same question are rated on a Likert scale, we wanted to order the items according to their scores. Thus, we first converted the Likert scores into numerical scores from 1 to 5 from the verbal categories (*Never, Rarely, Sometimes, Often, Very often; No extent, Small extent, Moderate extent, Great extent, Very great extent; Very unimportant, Somewhat unimportant, Somewhat important, Important, Very important*), with the value 1 representing the least frequent or important (*Never; No extent; Very unimportant*) and the value 5 representing the most frequent or important (*Very often; Very great extent; Very important*). There was a substantial number of blank answers for some of the items asking for a score on a Likert scale. The number of blanks in combination with the nature of the items indicates that a blank is normally intended to signify the lowest category, i.e. Never, No extent, or Very unimportant, rather than Not relevant. Hence, in order to avoid an artificial inflation of the mean scores, the blanks were not removed from the later calculations, but interpreted as a score of 1. All responses indicating Other categories were deleted from the response sets and not included in the ordered set of items.

We then calculated the mean value and its standard error (se) (Field, Miles, & Field, 2012, pp. 42–43) for each item and ordered the items according to their mean values. The standard error was used as a measure of dispersion for the variables. Converting ordinal categories like these into numbers assumes equidistant relationships between the categories, which may not always be the case. Both the descriptive statistics and the summaries should be interpreted with this in mind. Consequently, we have not followed Centeno's technique of clustering the ordered items using a combination of Friedman tests and post-hoc Wilcoxon tests. Besides, the results of the Friedman-Wilcoxon procedure are affected by the number of items in the list and hence are somewhat arbitrary and add little information to the results. Instead, we present and comment upon the ordered lists and the diagrams accompanied by means and standard errors. When comparing our mean values to Centeno's, we present standard deviations, since this is the dispersion measure given by Centeno.

Results

Of the 704 questionnaires emailed to the members of the Norwegian Association of Speech and Language Pathologists, 155 were returned, leaving us with a response rate of 22%. This may seem quite low, but it is higher than in the surveys conducted by (2009, 2015), in which the response rates were 18% and 12.5%, respectively. However, with a response rate of 22% there is uncertainty in interpreting the results since we do not know why 78% did not respond. A plausible explanation might be that many of them do not work with MPWAs. Of the 155 returned surveys, 53 respondents (34%) work with multilingual adults with neurological speech and language disorders. Thus, our analysis is based on the responses from these 53 respondents. In the rest of this section, we first report on the respondents' background, before giving the results of the four research questions.

Respondent Background

The distribution of the respondents who report that they work with multilingual individuals displayed in Table 1 show that 89% are female. 70% of the respondents hold a Master's degree. 75% have 15 years of experience or less; 43% have 5 years of experience or less. 70% work with aphasia more than half their time. 77% report that they are multilingual speakers themselves and 72% report that they could conduct assessments or provide treatment in English, in addition to Norwegian.

53% work in either acute hospitals, rehabilitation hospitals or both. 26% work in adult education centers. 21% work in private practices; one-third of these also work in institutions. 8% specify other employment than any of those listed above.

Table 1. Respondent background.

Variable	n	%
Gender		
Female	47	89
Male	6	11
Age		
20–29	14	26
30–39	12	23
40–49	8	15
50+	19	36
Hold a MA?		
Yes	35	70
No	18	30
Years of experience with aphasia		
0–5	23	43
6–10	11	21
11–15	6	11
16+	13	25
Caseload related to aphasia		
0–50%	16	30
50–100%	37	70
Multilinguals		
Yes	41	77
No	12	23

Figure 1 shows the disorders encountered by the SLPs, sorted in descending order according to their mean values, accompanied by the standard errors of the mean, which are also indicated by "whiskers" in the diagram. As seen in the figure, aphasia is the most commonly encountered disorder among the SLPs taking part in the survey, closely followed by dysarthria[5] and/or apraxia of speech[6], which were merged in a single item in the questionnaire.

28% of the SLPs report that they encounter aphasia *Often* or *Very often*, whereas 53% say that this happens Sometimes. No SLPs in this sample report that they *Never* encounter aphasia, as expected. The numbers demonstrate only small differences in how often the SLPs encounter dysphagia (swallowing disorders), reading and writing difficulties, right hemisphere damage and voice disorders, which are all less frequent than aphasia and dysarthria / apraxia of speech. Dementia and fluency disorders are the least frequently encountered disorders.

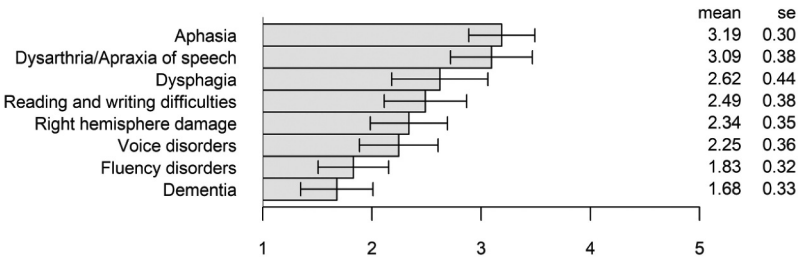

Figure 1. Disorders encountered in the multilingual adult caseload (N = 53), with mean values and their standard errors.

[5]Motor speech disorder in which the muscles used to produce speech are damaged, paralyzed, or weakened.
[6]Impairment of the capacity to program the movements of the articulators for the purpose of speaking.

Conceptual Knowledge and Clinical Training

81% of the respondents report that they have had none or minimal training during their education to prepare them for receiving MPWAs (Figure 2). Just one respondent indicates having had more than a moderate amount of such training.

In line with this tendency, the scores for the frequency of different forms of training are generally low. The results are shown in Figure 3.

92% of the respondents report having had no training at all in working with interpreters during their education; all of the remaining 8% had Rarely received such training. 23% answer that they met multilingual persons with aphasia during their student practice (only 9% report Sometimes or more frequently). As many as 81% have *Never* or *Rarely* attended lectures on cultural diversity, and almost the same number (79%) have *Never* or *Rarely* attended general lectures on multilingualism. 72% have *Never* or *Rarely* attended lectures on multilingual aphasia specifically. 72% report that they have had some access to literature on multilingual aphasia during their education.

Clinical Tools and Procedures

To assess what clinical tools and procedures SLPs working with MPWAs in Norway use, we asked them to rate the extent to which – and how often – they use various approaches in their clinical practice.

Assessment

The respondents were asked if they (normally) assess the language skills of their clients. The results are shown in Table 2, which demonstrates that many respondents assess language skills in more than one language. Only 8% report that they never assess language skills. 45% answer that they assess only Norwegian language skills, and 36% assess both Norwegian and the client's L1 and/or other languages. 11% report that they do not assess Norwegian, but only the L1 and/or other languages.

Assessment in Norwegian. The 53 respondents were then asked to rate the frequency with which they use specified procedures to assess Norwegian language skills, provided that they had replied that

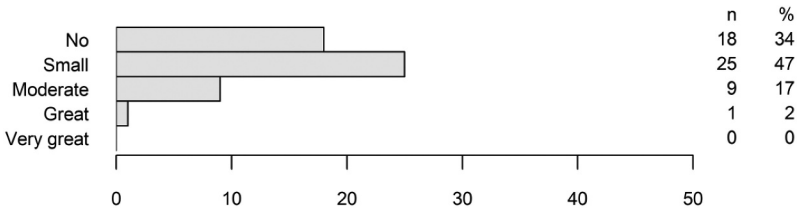

Figure 2. The extent to which the respondents' education prepared them for receiving MPWAs.

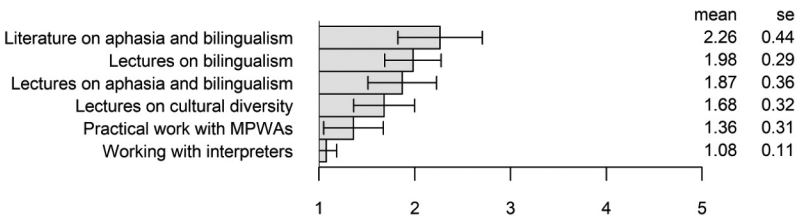

Figure 3. Forms of training encountered in the education (N = 53).

Table 2. Overview of languages of assessment.

Language(s)	n	%
Norwegian only	24	45
Norwegian and other language(s)	19	36
Other language(s) only	6	11
Never	4	8
Total	53	100

they normally do assess Norwegian language skills. However, six of the respondents report using at least one of the methods and procedures more often than Never, despite having reported that they normally do not assess Norwegian. We have therefore included all 53 respondents in the analyses of these ratings. An alternative analysis including only the 43 respondents who regularly assess Norwegian language skills yields the same general results, although the concrete mean values are of course higher.

The respondents were given a 5-score Likert scale ranging from *Never* to *Very often*. The results are shown in Figure 4.

Informal assessment seems to be by far the most popular approach – 75% report using informal assessments *Often* or *Very often*. The Norwegian Basic Aphasia Assessment (Reinvang & Engvik, 1980), the Haukeland Aphasia Screening Test (Sandmo et al., 2010) and the Psycholinguistic Assessments of Language Processing in Aphasia (Kay et al., 2009) are less frequently employed; between 26% and 43% report using one of these *Often* or *Very often*. Least used are the Norwegian version of the Bilingual. Aphasia Test (Paradis & Knoph, 2010) and the Aphasia Screening Test (Whurr, 1993).

Assessment in other languages. The 53 respondents were also asked about the procedure used in assessing language skills in the L1 of the client or in other languages. The results of these questions are shown in Figure 5. 28 of the respondents (53%) report that they normally do not assess language skills neither in the L1 of the client, nor in another language. However, only 7 of these 28 (25%) report *Never* using any of the above assessment procedures for the L1 or another language; hence, we

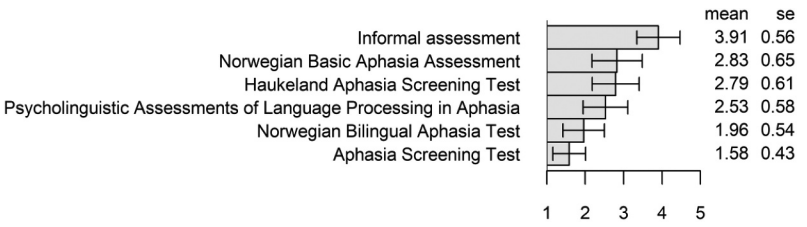

Figure 4. Assessment procedures for assessing language skills in Norwegian (N = 53).

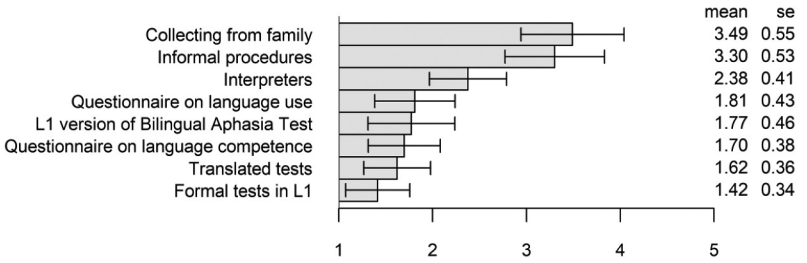

Figure 5. Assessment procedures for assessing language skills in other languages (N = 53).

included all 53 respondents for this analysis in the same way as for the assessment of skills in Norwegian.

The respondents were given a 5-score Likert scale ranging from *Never* to *Very often*. As can be seen from Figure 5, the items on assessment of other languages were not identical to the items on assessment of Norwegian (Figure 4).

The most frequently used procedures are collecting information from family or relatives along with informal data collection for instance through conversation. Less common is using interpreters. All other items represent more formal assessment procedures using different kinds of questionnaires and tests; the very low mean values for these items – all well below 2 – indicate that formal assessment of the client's L1 occurs very rarely.

Treatment

The respondents were further asked about which materials they use and what procedures they employ in treatment of the clients. The respondents were given a 5-score Likert scale ranging from *Never* to *Very often*. The results are shown in Figure 6, in which materials are marked by a darker shade than procedures.

The most frequent approach for providing appropriate treatment is cooperating with the client's family; 75% of the SLPs report that they cooperate with the family *Often* or *Very often*. Only 8% report that they *Never* involve the family. Furthermore, 53% say that they provide treatment in Norwegian *Often* or *Very Often*. 43% state that they *Never* or *Rarely* provide treatment in the client's best-preserved language. 30% answer that they give treatment in both languages of the client *Often* or *Very often*, although 60% say that they *Never* or *Rarely* do this. 64% *Never* or *Rarely* use interpreters. 19% of the SLPs declare that they *Often* or *Very often* use material that is culturally and linguistically adapted by others, whereas 47% of the SLPs *Often* or *Very often* adapt the materials themselves.

Service Delivery Issues

When asked about the extent to which the respondents feel prepared to work with MPWAs, 91% reply to a S*mall* (47%) or *Moderate extent* (43%).[7] 4% say they are prepared to *No extent*, whereas the remaining 6% feel well prepared (*Great* or *Very great extent*). 98% find assessment of multilingual clients with aphasia more challenging than assessment of monolingual clients, whereas 96% find it more challenging to provide treatment to multilingual clients than to monolingual ones.

The respondents were further asked to what extent they experience specified limitations or challenges when working with MPWAs. They were given a 5-score Likert scale ranging from *No extent* to *Very great extent*. The items are listed and the results shown in Figure 7.

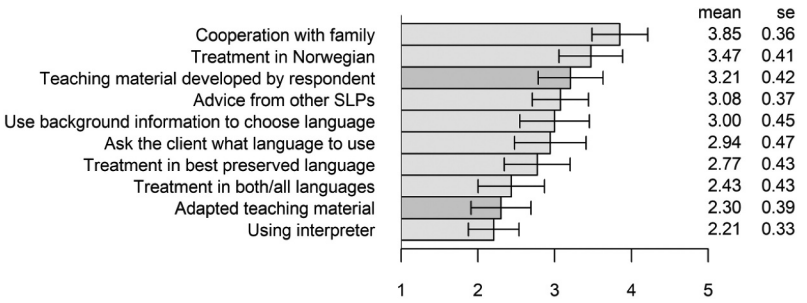

Figure 6. Material and procedures (N = 53). Materials in darker shade; procedures in lighter.

[7]Numbers do not add up due to rounding.

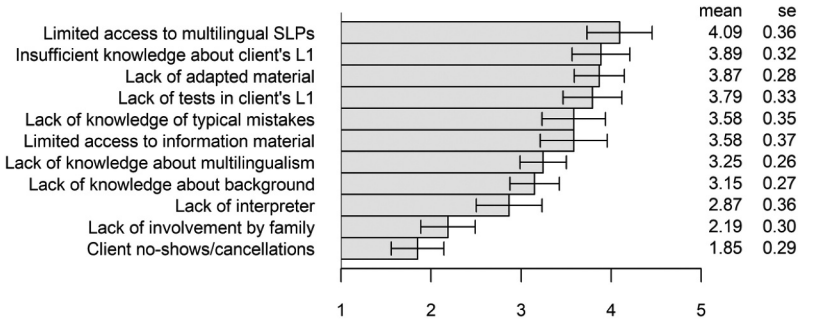

Figure 7. Limitations or challenges when working with MPWAs (N = 53).

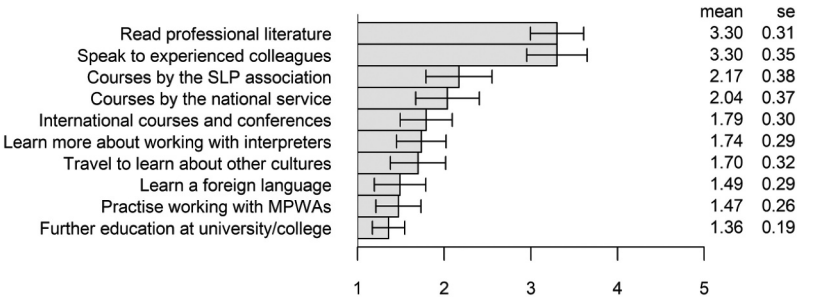

Figure 8. Ways to learn about multilingualism (N = 53).

Several issues are reported by SLPs as challenges to a Great or Very great extent: limited access to multilingual SLPs (77%), lack of material for treatment (77%), lack of proper tests (74%), and insufficient knowledge about the L1 of their clients (68%). By contrast, lack of involvement by the client's family and failure of the client to come to appointed consultations seem to be rare obstacles. 5 of the top 6 items in Figure 7 correspond closely to Centeno's (2015, p. 66) 5 items, and their mean values (4.1 to 3.6) are in the same range as Centeno's (4.1 to 3.8).

We asked the respondents to rate the frequency with which they made use of different types of opportunities to learn more about multilingualism. The respondents were given a 5-score Likert scale ranging from *Never* to *Very often*. The results are shown in Figure 8.

Reading professional literature and speaking to experienced colleagues are by far the most popular methods to improve one's own knowledge about multilingualism in general. 85% and 77% of our respondents, respectively, report doing this to a Moderate extent or greater. Few courses are attended, although some have taken courses run by the SLP association or by Statped (a national center for special needs education). The least common means to gather more knowledge about multilingualism is further education at universities or colleges. As many as 94% of the respondents answer that they have used this opportunity to *No extent* or a *Small extent*.

Suggested Improvements to Clinical Services

To collect ideas about how to improve clinical work with MPWAs, we asked the respondents to rate the importance of different kinds of measures to be taken. The respondents were given a 5-score Likert scale ranging from *Very unimportant* to *Very important*. The results are shown in Figure 9.

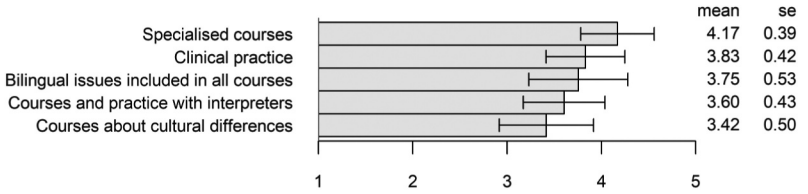

Figure 9. Importance of measures to improve quality of work with MPWAs (N = 53).

All items for this question received quite high ratings, with mean values well above 3 in all cases. Specialized courses and clinical practice in working with MPWAs during the education programs are rated as most useful by the SLPs, with 89% and 74% rating these as Important or Very important, respectively. 70% also find it Important or Very important for the SLP programs to include more multilingual issues in general, as well as MPWA issues in particular. In addition, courses and practice in working with and through interpreters are rated as *Important* or *Very important* by as many as 54%. The general high ratings are in contrast with the low reported attendance to courses (see Figure 8 above) and could be seen as a sign of a perceived need of more training or practice in the area.

Discussion

In this study, we replicated the study by Centeno (2015), to investigate the degree of comparability between findings from the US and from a European country with a different demographic composition and a different clinical training from that of the original study. Our findings are discussed in relation to Centeno's findings and the four research questions posed: What conceptual knowledge and hands-on clinical training do SLPs have to work with MPWAs? What are the clinical tools and procedures employed by SLPs when they serve MPWAs? What are the service delivery issues faced by SLPs when working with MPWAs? What are the changes suggested by SLPs to improve the quality and quantity of information that would enhance clinical services with MPWAs?

Respondent Background

The demographics of the respondents resemble that of Centeno (2015) to a certain degree. As in Centeno's survey, the majority of our respondents are female clinicians with a Master's degree and they work with aphasia for more than half their time. In contrast to the US respondents, however, the majority of the Norwegian SLPs are younger than 50 years old and have fewer than 15 years of experience. A possible explanation for this may be that many of the more experienced SLPs who work with aphasia in Norway are private practitioners who might be less motivated to spend their working hours on tasks that are not directly related to their clients. Another difference between the two respondent groups is that more than 77% of the Norwegian SLPs report that they are multilingual speakers, in contrast to 21% in Centeno's survey. A plausible explanation for this large difference is that many of the Norwegian SLPs consider themselves to be multilingual speakers not because they have a multilingual family background, but rather because they learned English as a foreign language at school.

When it comes to work settings, the Norwegian and American respondents are similar in that they predominantly work in hospitals and adult education centers, whereas a smaller proportion work as private practitioners. In terms of caseload, aphasia is the most commonly reported disorder (mean 3.19, standard deviation 0.86) in Norway, followed by dysarthria / apraxia of speech, with dementia (m 1.68, sd 0.94) being relatively infrequently reported. By contrast, Centeno reports that the US clinicians most commonly encounter dysphagia (m 4.01, sd 1.08), closely followed by both aphasia (m 3.61, sd 1.03) and dementia (m 3.40, sd 1.22). That dementia is less frequently reported

by the Norwegian SLPs constitutes the greatest difference between the two SLP populations. A potential explanation for this may be that dementia is only addressed to a small extent in the education of SLPs in Norway, and the Norwegian National guidelines for dementia do not mention SLPs (Helsedirektoratet, 2017). The difference in dysphagia encounters among clinicians in the US and Norway (m 2.62, sd 1.24) is more difficult to explain.

Conceptual Knowledge and Clinical Training

In line with what is reported from the US respondents (Centeno, 2015), most of the SLPs in the Norwegian survey report that their education has hardly prepared them for the reality – a caseload with a growing number of MPWAs (Ansaldo & Ghazi Saidi, 2014; Roberts & Kiran, 2007). Practically none of the Norwegian SLPs (m 1.08, sd 0.27) have had any training in working with interpreters. 77% of the Norwegian SLPs had never met multilingual persons during their student practice. 80% had never or rarely attended lectures on multilingualism in general, and 43% had not attended lectures on multilingual aphasia. The results resemble Centeno's (2015) in most respects, although he finds somewhat more focus on "training on how to work with interpreters" (m 1.67, sd 0.90) than we do.

Although literature on multilingual aphasia is included in the Norwegian curriculum, this does not seem to prepare SLPs very well for clinical work with MPWAs. Whereas US ethical guidelines for SLPs include text about working with culturally and linguistically diverse populations, such populations are not specifically mentioned in the ethical guidelines for SLPs in Norway. The ethical guidelines of The International Association of Logopedics and Phoniatrics (IALP), which Norwegian SLPs are supposed to follow, do not include anything on multilingualism. While IALP's Multilingual and Multicultural Affairs Committee do have a document on common questions about dementia in multilingual populations, they have no general guidelines (International Association of Logopedics and Phoniatrics, 2021).

It may be the case that if guidelines existed supporting SLPs in Norway in their work with culturally and linguistically diverse populations specifically, then the educational institutions would have to reinforce this topic in the education.

Clinical Tools and Procedures

The results on clinical tools and procedures are particularly difficult to compare to Centeno (2015), as our survey contains a far greater number of items about this area, ten questions to his four questions. Noticeable is the fact that our mean values, ranging between 3.85 and 2.21, are generally lower than Centeno's, which range from 4.31 down to 3.69. We believe this effect to be solely due to the greater number of items, and that it should not be interpreted as intervention procedures being employed to a lesser extent in Norway.

A survey conducted in Norway in 2003 showed that SLPs in Norway primarily assessed Norwegian language skills in MPWAs (Knoph, 2003). Our results partially confirm the 2003 survey. MPWAs constitute a highly heterogeneous group, and even though we know that assessing all their languages is imperative in order to detect the language impairment in all their languages (Roberts & Kiran, 2007), just over one third of our respondents report that they assess all the languages of their clients. This finding should probably be interpreted in light of the lack of available assessment materials in other languages than Norwegian, and also the lack of training in working with interpreters, as pointed out in the Results section.

Language assessment of individuals with aphasia can be informal (e.g. creating and manipulating stimuli to make clinical decisions, as well as gathering information on premorbid language proficiency) or formal (with standardized and norm-referenced tests). Often the two approaches are combined (e.g. Centeno, Ghazi-Saidi, & Ansaldo, 2017; Murray & Coppens, 2013). Our SLPs report that they primarily conduct informal assessment, both in Norwegian – where appropriate assessment materials are available – and in the client's L1. However, assessment of the L1 may be more

challenging, due to lack of assessment materials in other languages than Norwegian, and lack of knowledge of such materials when they exist. Comparison of our findings with those of Centeno (2015) indicate that the use of standardized tests for the second language (in our case, Norwegian) may be less widespread in Norway (see Figure 4) than what was reported in the US. This difference may merely result from our questionnaire being more detailed in this area. Centeno (2015) does not clearly distinguish between assessment of the majority language on the one hand and assessment of L1 or other languages on the other. However, our results support Centeno's results indicating that the SLPs generally rely on informal assessment and collecting information from the client's family about the languages of the client. This is a sensible strategy, but should ideally be done as a supplement to formal language assessment rather than a replacement. It may be either challenging or impossible for a family member to have a comprehensive and linguistically in-depth knowledge of the language abilities and impairments in a language they may not master themselves. Thus, relying solely on family members to provide an objective and realistic evaluation of a person's language abilities – and language impairments – may be optimistic, and even unethical in some instances.

That said, interpretation even of formal assessment results is not always straightforward. For example, we need information about the normal variation. Only with formal, norm-based assessments is comparison of the individual's linguistic performance to a norm group possible. There are not many published tests for assessing several languages in a systematic and equivalent manner. There is, however, one published assessment tool which is designed precisely for that purpose. *The Bilingual Aphasia Test* (BAT) (Paradis & Libben, 1987) was designed to be a comprehensive and comparative test for bilingual persons with aphasia and exists in more than 65 languages, among them Norwegian (Paradis & Knoph, 2010). Unfortunately, there is a lack of published comparisons of the different language versions of the test, which is a weakness (Muñoz & Marquardt, 2008). Our finding that relatively few SLPs use the BAT for assessing MPWAs may, on the one hand, simply result from a lack of interpreters or knowledge about working with interpreters. On the other hand, it may indicate that SLPs tend not to be aware of this assessment battery and hence that information about relevant assessment tools for MPWAs needs to be included in their education.

The only real difference between the two groups is that working with interpreters seems to be less frequent in Norway (m 2.38, sd 0.41) than in the US (m 3.46, sd 1.34). A likely explanation for this is the near absence of information about working with interpreters in Norwegian SLP education.

Norwegian SLPs cooperate with the client's family for treatment provision, just as with assessment. This finding agrees with Centeno's (2015) results, which also indicate involvement of the client's family as the most frequent method of treatment application. Centeno describes this as a sensible choice and an approach which aligns with socially focused service models to work with neurologically impaired monolingual and bilingual persons (Centeno, 2015; Penn, 2012; Simmons-Mackie, 2008). Although it may be problematic due to the reasons mentioned in relation to assessment above, we agree with Centeno in that involving the family is a useful supplement when the L1 is unknown to the SLP.

While more than half of our respondents provide treatment in Norwegian only, one-third report that they provide treatment in more than one language. Since very few use interpreters in treatment provision (two thirds report that they never or rarely use interpreters), it is likely that the treatment they provide is in English. Nearly three-quarters of the SLPs report that they speak English well enough to provide treatment in this language, so offering treatment provision in English may therefore be a reasonable decision for some clients. For others, treatment in two languages may cause unwanted code switching (Faroqi-Shah et al., 2010); hence, this must be considered individually.

Language therapy for persons with aphasia needs to be tailored to the language impairment of the individual client. For multilingual individuals, this should ideally include knowledge about the impairments in all the person's languages (Ansaldo et al., 2008). In general, SLPs often employ material they have adapted themselves, and our respondents are no exception. For treatment in Norwegian, almost half of the SLPs adapt the material themselves. Only a limited amount of

published treatment materials in Norwegian – or other languages – exist and is easily accessible to clinicians in Norway. It is thus not surprising that very few of the respondents report using material that is culturally and linguistically appropriate for other languages than Norwegian.

Service Delivery Issues

Challenges exist in serving MPWAs in an ethical and appropriate manner. Hardly any of the respondents feel prepared to work with MPWAs and almost all of them consider it more challenging to conduct assessment and to provide treatment to MPWAs than to monolingual individuals. This corroborates the findings of Centeno (2015) indicating that SLPs feel unequipped to work with MPWAs. A majority of the Norwegian respondents describe limited access to multilingual SLPs along with a shortage of appropriate tests and treatment materials as the greatest challenges in providing proper care for MPWAs. Even if access to multilingual SLPs to administer assessment and to provide treatment is desired by the respondents, this is often not possible. In brief, there are no large multilingual populations in Norway, so even if there were many multilingual SLPs available, finding SLPs with the same language combinations as the clients would often be challenging. As in the survey from the US, a large proportion of our respondents report lack of appropriate assessment tools and materials for treatment as a challenge in service delivery. This shortcoming is previously documented extensively in various countries (Centeno et al., 2017; Harris, 2011; Kiran & Roberts, 2012).

Similar to the results of Centeno (2015), a considerable proportion of the Norwegian SLPs view insufficient knowledge of their client's L1 as a challenge. However, the language situation in Norway differs considerably from that in the US, where the largest bilingual group consists of Spanish speakers (Ryan, 2013) and 90% of the bilingual SLPs in Centeno's survey speak Spanish. As mentioned in the Introduction, several immigrant groups in Norway speak languages unknown to most Norwegian SLPs: Polish, Lithuanian, Somali, Punjabi/Urdu, Arabic, and Tigrinya. Moreover, unlike the situation of Spanish in the US, there is little demand among SLPs for language courses in most of the immigrants' languages. Few of the Norwegian SLPs report having learned a foreign language to improve their professional competence (m 1.49, sd 0.93), unlike the US SLPs (m 2.29, sd 1.26).

Our results indicate that speaking to experienced colleagues is a common means of acquiring relevant knowledge similar to Centeno's (2015) findings. By contrast, the use of literature is somewhat less common among US respondents (m 2.78, sd 1.15) than among ours (m 3.30, sd 0.97). And as mentioned previously, the use of interpreters is much less common among our respondents (m 1.74, sd 0.90) than among Centeno's (m 2.82, sd 1.31), so the differences pertaining to interpreters appear to be systematic.

Suggested Improvements to Clinical Services

Given that so few of the SLPs in the US feel prepared for clinical work with MPWAs and that their education did not prepare them properly for this client population, our final research question concerned improvements of clinical services for MPWAs. Our results in this area agree in most respects to those of Centeno (2015). Specialized courses on working with MPWAs and inclusion of and training in multilingual issues in the education programs all receive quite high ratings, although Centeno's respondents rate courses on cultural awareness (m 4.04, sd 0.94) somewhat higher than ours (m 3.42, sd 1.12). The two groups view improvement of training about how to use interpreters as equally important. This contrasts with the lower ratings given by the Norwegian respondents in previous questions concerning the use of interpreters and may indicate that the limited experience with interpreters is felt as a shortcoming by the Norwegian respondents.

Concluding Remarks and Future Directions

Our overall results correspond to prior American studies (Centeno, 2009; 2015), meaning that our findings support the existence of a transnational trend, rather than one confined to Norway alone. Our findings are of crucial importance for MPWAs, as a clear implication is that clients with different native languages from the majority language may be deprived of SLP services or receive less than optimal assessment and treatment.

In order to meet the challenges in finding proper material for treatment in clients' different L1s, we propose the development of a website or a database where clinicians throughout the world can upload a variety of materials, in different languages. It will not solve all challenges – one will still need speakers of the different languages to provide the treatment. It may be feasible to engage language teachers or volunteers to provide treatment under the supervision of experienced SLPs with knowledge about multilingualism in general, and multilingual aphasia in particular.

A change in the education programs for SLPs in Norway seems overdue. Universities need to consider the changing demographics of persons with aphasia and the expected increase in multilingual persons with aphasia when designing courses. There is an urgent need for curricular and training modifications in the education for SLPs. In addition, supplementary courses in working with people from different cultural and linguistic backgrounds should be offered to already graduated SLPs. There is also a need for better training in how to work with interpreters to make our SLPs better prepared for the growing number of MPWAs.

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