Managing Developmental Dyslexia: Practices of Speech-Language Therapists in South Africa

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Abstract

Background: The American-Speech-Hearing-Association (ASHA, 2010) position statement asserts that Speech-Language Therapists (SLTs) are involved in the prevention, identification, assessment, and provision of intervention for reading and writing problems, as well as in providing other services such as counselling and information services. The 2007 Ethics and Standards Committee of the South African Speech-Language-Hearing-Association (SASHLA) proposed guidelines on the practicalities of rendering these services to the South African population. Despite these position statements and guidelines, there is limited information available on the efficacy of intervention programmes used by the SLT population. Aim: This study investigated current knowledge and practices of SLTs in the South African context, as well as their perceptions regarding developmental dyslexia (DD) management. The main aim was to determine the nature of DD management practices of SLTs in South Africa (SASLT). Method: A survey study with an embedded design was employed. More specifically, a descriptive, correlational study was conducted which included qualitative and quantitative data in the same general time period. Results: Results indicated that the majority of SASLTs do not manage DD and are not confident in their ability to manage DD. The SASLTs felt that more in-depth training would be of benefit to them.

Conclusion: Training in the field of developmental dyslexia should be considered by professional bodies in the field of SLT.

Key words: developmental dyslexia, South Africa, Speech-Language Therapists, management.

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Introduction

In Speech-Language Pathology, Developmental Dyslexia (DD) is classified as a written language disorder (Owens, 2010). This term at the outset creates some confusion as DD is associated with both reading (decoding) and writing or spelling (encoding) difficulties (Ozernov-Palchik & Gabrieli, 2018). Furthermore, it is a neurobiological disorder due to a phonological weakness in individuals who otherwise have the necessary cognitive abilities and educational opportunities for accurate and fluent reading (Shaywitz & Shaywitz, 2005). The American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders [DSM-5] (APA, 2013) includes DD as a common example of a broader classification system named Specific Learning Disorder (SLD). This broader classification system separates DD from other, more general, written language disorders, but may induce certain overlapping challenges pertaining to subtyping and symptomology (Shaywitz & Shaywitz, 2016). However, regardless of the terminology and classification perplexity, the management of written language disorders, including DD with its encoding and decoding challenges, is included in the scope of practice for Speech-Language Therapists (SLTs) by the American Speech-Language-Hearing Association (ASHA, 2010).

According to the ASHA position statement (2010) SLTs are involved in the prevention, identification, assessment, and provision of intervention for reading and writing problems, as well as in providing other services such as counselling and information services. Although they do not provide further details in regards to this scope of practice, the 2007 Ethics and Standards Committee of the South African Speech-Language-Hearing-Association (SASHLA) proposed guidelines on the practicalities of rendering these services to the South African population. Unfortunately these specific guidelines focussed more on the regulation of professional behaviour than indicating specific roles. In a later publication by Kathard et al. (2011) author Ehren asked a number of questions which needs to be answered in South Africa regarding the SLT in the educational context. Shortly after, the Health Professions Council of South Africa (HPCSA, 2012) also requested the documentation of the roles and responsibilities of the local SLTs in schools. Erasmus, Schutte, Van der Merwe, and Geertsema (2013) contributed, in part, to answering Ehren's third question on the roles and responsibilities of SLTs in schools, as well as adhere to the

HPCSA call. Erasmus et al. (2013) investigated whether privately practicing speech-language therapists are fulfilling their roles of identification, assessment, and intervention for adolescents with general written-language and reading difficulties. These authors surveyed a number of private practicing SLTs and found that the respondents felt adequately equipped to work with this population. However, the respondents indicated that this adequacy stemmed more from own experience, self-study, and secondary training, than appropriate undergraduate training. The present research is therefore in support of Kathard et al. (2011), the HPCSA (2012), and Erasmus et al. (2013) regarding the need for a revised curriculum and critical review of the changing SLT roles in the changing South African context. Furthermore, we aimed to look into DD specifically, and not only the broader classification of written language disorders or difficulties.

In South Africa, 25% of learners in grades 1 to 3 are being schooled in a language that is not their mother tongue (Kathard et al., 2011). This educational context makes it difficult to determine the exact source of reading and writing problems. It is important to consider socio-cultural and linguistic factors when making the diagnosis of a specific learning disorder such as DD (Lundberg, 2002). However, it has been noted that learners trying to read in an additional language face a more challenging task than learners reading in their first language (Hutchinson, Whiteley, Smith, & Connors, 2004). This difficulty can be compounded by a disorder such as DD, when considering that learning an additional language is challenging in itself (Hutchinson et al., 2004). DD is seen as an impairment in phonological processing systems, and these systems are essential in order to learn a foreign language (Lundberg, 2002). Learners with DD have difficulties in acquiring the language as well as learning how to read in the language. English, specifically, is not a phonetic language (it has a deep orthography) (Lundberg, 2002). This makes it more challenging for people with DD to learn it, as they not only have to learn the phonetic building blocks, but they also have to master the actual structure of the language (Lundberg, 2002). Learners with DD in the South African context, who are likely to be learning in an additional language, face more severe challenges in the school arena due to the aforementioned aspects (Lundberg, 2002). Inclusion in mainstream schools also becomes a challenge.

While much has been done to roll out Inclusive Education practices (South African Department of Education, 2001) challenges are encountered when attempting to implement

these principles. Classroom sizes have increased due to legislation emphasising the right to basic education (Republic of South Africa, 1996). In a study conducted by Engelbrecht, Oswald, and Forlin (2006) it was found that the learner-teacher ratio in three schools in the Western Cape Province of South Africa was 50:1. Teachers lack the infrastructure, resources, and training to provide individual support to learners who do not experience barriers to learning (Engelbrecht et al., 2006) and are even less equipped to cater for the needs of LSEN (Nel et al., 2011). Teachers will require support in understanding, identifying, and providing assistance to LSEN, including learners with DD (Rakholile, 2006). In this case, the South African SLT (SASLT) will serve an informative and supportive role to the teacher (Navsaria, Pascoe, & Kathard, 2011). The SASLT will also be involved in identifying children with learning disabilities (including DD) and providing additional services that these children may require (Navsaria et al., 2011).

It is clear that DD is a widespread, severe, and multi-faceted disorder requiring effective intervention in order to prevent the disorder from affecting other aspects of functioning (Fletcher, Foorman, & Boudousquie, 2002). According to ASHA (2010), SLTs are knowledgeable and skilled in the area of written language and phonological disorders, and as such, should be involved in the intervention for DD. Written and spoken language are considered to be interlinked and reciprocal in nature (inter alia, if there is a deficit in written language there is a possibility of there being limited development of spoken language). Learners with written language difficulties may also struggle using language to learn. SLTs are knowledgeable and skilled in providing services to populations with spoken language problems, and thus are able to provide services for populations with written language problems as well. However, despite ASHA specifying in their position statement (2010) that the SLT has the necessary expertise in order to be involved in DD intervention, there is limited information available on the efficacy of intervention programmes used by the SLT population (Demonet, Taylor, & Chaix, 2004). This presents an obstacle for SLTs, especially with the emphasis shifting to evidence-based practice (Joffe, Cruice, & Chiat, 2008). There is therefore a need to investigate the current practices of SLTs, as well as the efficacy of these practices. This study subsequently investigated the current knowledge and practices of SLTs in the South African context, as well as their perceptions regarding DD management, in order to gain knowledge regarding which areas require development and

further research. The main aim of the study was to determine the nature of DD management practices of speech-language therapists in South Africa (SASLT). Subsidiary objectives were to determine assessment and diagnosis practices of DD by the SASLT, to determine treatment practices of SASLTs, and to determine the perceptions of SASLTs regarding management of DD.

Method

Research Design

A survey study with an embedded design was conducted. This design was chosen as it is useful for exploration research, and can provide subjective, confidential information about participants' perceptions and ways of thinking (Christensen, Johnson, & Turner, 2013).

The survey had an embedded design as it collected both qualitative and quantitative data in the same general time period. The quantitative data described the current management practices and how these are affected by certain variables. The qualitative aspect determined the perceptions of SASLTs regarding the management of DD, their confidence in this area, and how they feel their confidence could be improved. The study is therefore a descriptive, correlational study as it described the relationships between different variables and the management of DD without establishing cause and effect.

The dependent variable was the management practices of the SASLTs. Various independent variables were identified. These included: the highest qualification obtained and which university this was obtained at, the number of years that the SASLT has been practising, any additional courses relating to DD that have been attended, and what professional setting the SASLT practises in. In an attempt to control the independent variables, the questionnaire required the researchers to classify clients as either being officially diagnosed with DD or suspected of having DD. The design of the questionnaire also attempted to collect a wide-spread nature and optimal amount of data; and provided space for additional comments.

An individual sampling unit of analysis was used, as SASLTs were contacted in their

individual capacity. This sampling method is thus non-random volunteer sampling where participants self-select into the sample (Christensen et al., 2013). The study is cross-sectional because the SASLTs were only contacted once to obtain the necessary information. This information was obtained using a web-based questionnaire sent out via email.

Ethical Considerations

The study was conducted in adherence with the principles set out by the Health Professions Council of South Africa (HPCSA) (2008) to guide health researchers. These are: autonomy, confidentiality, beneficence, non-maleficence, and distributive justice. The autonomy of the participants was respected as informed consent was obtained. Participants received information regarding the aims, procedures, benefits, and risks related to the study, as well as their rights as a participant. By completing the questionnaire the participants gave their informed consent. Confidentiality was maintained as no names or contact information was filled in on the questionnaire or released for public viewing. Participants were not exposed to harm through completing the questionnaire. This means that the principles of beneficence and non-maleficence were upheld. The study also hoped to hold social value as it may help identify factors that contribute to the burden of this disorder, and identify areas of concern that should be addressed (HPCSA, 2008). Distributive justice was maintained as all SASLTs that met the criteria of the study and are members of SASLHA received an invitation to participate in the research, and were not discriminated against on any grounds.

Participants

In order to obtain a representative sample, the researchers attempted to obtain a list of all SASLTs by contacting the HPCSA. The HPCSA were unfortunately not at liberty to grant access to this information. As such, the researchers made use of a list of qualified SASLTs that are members of SASLHA. All SASLTs on the list were contacted via email with a request for them to participate in the study. The inclusion criterion was that the participant

must be a qualified, practising SASLT. The exclusion criteria were if the SLT is practising outside of South Africa and dual qualification for speech-language therapy and audiology (SLTA) if a preference for speech-language therapy was not indicated. Table 1 summarizes the information on the participants.

Table 1. *Biographical data of the participants (n=48)*

Years of Experience		Clinical Setting		Highest Qualification Obtained		University where Qualification was Obtained	
0–5 years	47.73 %	Private Hospital	40.91 %	Honours	75.00 %	University of Cape Town	29.55 %
6–12 years	15.91 %	Public Hospital	22.73 %	Under-graduate	13.64 %	University of the Witwatersrand	22.73 %
13+ years	36.36 %	Other	18.18 %	Masters	6.82%	University of Kwa-Zulu Natal	18.18 %
		Special Needs School	13.64 %	Doctorate	4.55%	University of Pretoria	13.64 %
		School	4.55%			University of Stellenbosch	13.64 %
						University of Limpopo	2.27%

Pilot Study

Objective

The objective of the pilot study was to increase the validity of the questionnaire and to ensure that the terminology used in the questionnaire was not ambiguous and was easy to understand.

Participant

The single SASLT selected to participate in the pilot study works at a school for learners with specific learning disabilities and therefore has experience in treating learners with DD. The participant obtained a B Communication Pathology degree from the University of

Pretoria, South Africa. The participant holds an additional diploma in education for special needs and has thirteen years' experience in the field of speech-language therapy.

Materials

The questionnaire used in the study was sent to the SASLT in Excel format. This format ensured that comments and suggestions could easily be added to the document, as the web-based survey would not allow for comments on the actual questionnaire.

Procedures

A cover letter was emailed to the participant, along with an Excel copy of the questionnaire. The participant was asked to provide feedback on the questionnaire regarding how transparent the questions were, the relevance of the questions, and the convenience of the questionnaire in terms of both time and format. The changes suggested were then considered and the questionnaire was changed accordingly.

Results

The participant suggested several changes to be made to the questionnaire (Appendix A). After consideration of these suggested changes, it was felt that some of the questions had been misunderstood and were therefore ambiguous. Consequently those questions were adapted to be more transparent.

Main Study

Material and Apparatus

A web-based questionnaire was used in order to obtain the relevant information. The questionnaire was designed on the website "Survey Monkey" (www.surveymonkey.com) and a link to complete the questionnaire was emailed to participants, along with the cover letter. The final questionnaire (Appendix B) consisted of standardised-response format questions where options were given to choose from or where short answers could be filled in. Various scales were used in the questionnaire, including Likert-type rating scales, nominal scales, ordinal scales, and interval scales (Rea & Parker, 2012).

The questionnaire used in this study contained a 5 point scale with two positive responses, two negative responses, and one neutral response. This format of question works well in a series of questions which seek to determine perceptions regarding one specific matter. One disadvantage is that participants can select the neutral category and this will consequently not provide useful data. The researchers felt that participants may not always have strong feelings regarding a specific topic and need this option. A nominal scale uses distinctly measurable variables which can be categorised but not ranked while ordinal scales can be ranked according to significance. Information collected on an interval scale can be categorised and ranked and show exactly how much each variable differs. Behaviour checklists were used to determine the habits of the participants regarding additional training in DD. A fixed-response format was used in order to minimise the amount of time the questionnaire took to fill in and so that data obtained could be easily described.

The questionnaire (Appendix B) was separated into various sections. These include: biographical information, client related information, and management (assessment and treatment) of DD. Biographical information was obtained in order to characterise the participants. This allowed categorisation of the participants into sub-groups for comparison and statistical analysis.

Validity and Reliability

The following types of validity were relevant to this study:

Face validity: the pilot study revealed that some language used in the questionnaire was ambiguous. This was then rectified to increase face validity. Furthermore the pilot study revealed that the questions used were pertinent to achieving the research objectives.

Content validity: The questions were based on current research in the field of DD and written language problems. All speech–language therapy related areas were covered in the questionnaire.

Internal validity: The researchers were able to identify significant relationships between variables which shows that the study had internal validity. However, some discrepancies were noted in the answers of the participants which negatively impacted on the internal validity of the study.

External validity: Applicability of results is more likely if a representative sample of participants is obtained. It was attempted to have a representative sample by obtaining a list of all registered SASLTs from the HPCSA. The HPCSA was unable to provide contact information for the registered SASLTs. SASHLA members were contacted as an alternative population sample. The discrepancies in the answers given by some of the participants also negatively affect the external validity of the study.

Reliability is obtained when multiple measurements yield the same result in a study. Although multiple measurements were not used in this study, attempts were made to increase reliability by standardizing the method of obtaining data.

Procedures

Data collection

Due to the HPCSA being unable to grant access to contact information of registered SASLTs, a list of qualified SLTs who are members of SASLHA was obtained from SASLHA. All SASLTs and SASLTAs (n=267) on this list were contacted to participate in the study. A link to the questionnaire (Appendix A) was emailed to the potential participants with a deadline for responses, and a reminder was sent after the first week via email.

Data recording

The answers to the questionnaire were obtained in a web-based format, and transferred into an Excel spreadsheet for analysis. Numerical codes were assigned to non-numerical answers so that this information could be easily transferred into a data analysis programme.

Data analysis

The proportion of SASLTs (n=48) that assess and treat DD was determined and a summary of the data was obtained using frequency distribution and contingency tables. Frequency distribution is a summary of how often specific values occurs within a data set. The STATA programme was used to analyse the data into contingency tables based on the following variables: clinical setting, years of experience, university where SLT degree was

obtained and the attendance of CPD courses. The mentioned factors were compared with both assessment and treatment of DD. The assessment and treatment of DD was then analysed using the Fisher's exact test.

Results

Results of the study are presented in order of the objectives of the study:

Assessment and diagnostic practices

31% of SASLTs in the study sample assess DD. A 95% confidence interval shows that the actual proportion of SASLTs that assess DD would be (17.6%; 47.1%). The likelihood of a SASLT assessing DD was compared with the following variables: clinical setting, years of experience, university where the person qualified and whether CPD course(s) had been attended. Contingency tables were created to compare these and the Fisher's exact test was used to determine the significance of these relationships. No individual variable had a significant impact on the likelihood of a SASLT assessing DD.

Treatment practices

52.6% of SASLTs in the study sample treat DD. A 95% confidence interval shows that the actual proportion of SASLTs that treat DD would be (35.8%; 69%). The likelihood of a person treating DD was compared with the following variables: clinical setting, years of experience, university where the person qualified and whether continuous professional development course(s) had been attended. Contingency tables were created to compare these and the Fisher's exact test was used to determine the significance of these relationships. The clinical setting, years of experience, and CPD course attendance had a significant impact with p values of 0.003, 0.004, and 0.006 respectively. The University where a qualification was obtained did not have a significant impact as the p value was 0.408.

Assessment and treatment practises were further investigated by considering specific areas of assessment and treatment. Areas of management were listed as follows: phonemic awareness, phonological awareness, auditory processing, phoneme-grapheme association, letter name knowledge, sight word recognition, word attack skills, reading comprehension, reading accuracy, reading speed, vocabulary expansion, spelling instruction, and narrative writing. The proportion of SASLTs targeting the specific areas during assessment and treatment is reflected in Figure 1.
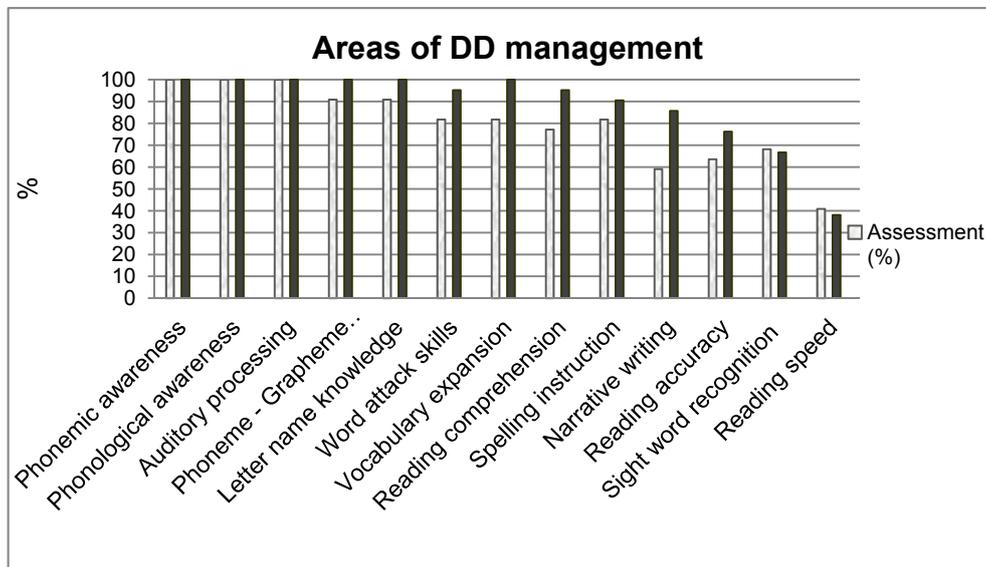

Figure 1. Areas of assessment and treatment

Perceptions in regards to management practices

The qualitative data was analysed as perceptions of SASLTs and reported as overall percentages regarding competency. These perceptions were examined based on a Lickert-type rating scale (Christensen et al., 2013). Regarding competency in the management of DD, 50% of respondents selected the "not at all competent" to "somewhat competent" options. 28.9% of respondents felt moderately competent, while only 5.3% felt very competent in the management of DD. 15.8% of respondents indicated a neutral response.

SASLTs were subsequently to the competency question asked to indicate to what extent they agreed with the following statement: "Management of DD is the role of the speech-language therapist." 0% strongly disagreed, 13.2% disagreed, 21.1% selected a neutral response, 52.6% agreed with the statement, and 13.2% strongly agreed.

The majority of SASLTs respondents (76.3%) answered "Yes" to the question "Do you think the professional bodies associated with speech-language therapy (e.g., SASLHA) should provide more information, training or other support for the management of DD?" 2.6% of respondents indicated that they did not think that professional bodies should provide more information, training, and support and 21.1% selected the "not sure" option.

Almost all of the participants (97.3%) felt that they would benefit from a workshop in DD management as part of Continuing Professional Development (CPD). These responses were closely followed by perceived benefit from training by other professionals in the field of DD (86.5%), articles relating to DD and relevant management practises (83.8%). and DD specific training at university level (81.1%).

Discussion

DD is an impairment that encompasses reading, spelling, phonological awareness, and auditory processing (Shaywitz & Shaywitz, 2005). The areas underlying normal acquisition of reading are: phonological awareness (Olivier, Anthonissen, & Southwood, 2010), phonemic awareness, phoneme-grapheme association, sight word acquisition, vocabulary, and comprehension of text (Alexander & Slinger-Constant, 2004). In order for skilled reading to develop, reading speed is seen as essential (Kuhn, Schwanenflugel, & Meisinger, 2010). The other areas included in the questionnaire were: word attack skills, narrative writing, letter name knowledge, and reading accuracy. Written language is comprised of all the areas mentioned above (Owens, 2010). As DD is an impairment in written language, learners with DD may experience difficulties in any of these areas, not only in the areas of reading, spelling, phonological awareness, and auditory processing.

According to the results, 31% of SASLTs within the study population assess DD. All of these SASLTs assess the following areas: phonemic awareness, phonological awareness,

and auditory processing. The majority of the SASLTs target phoneme-grapheme association, letter name knowledge, word attack skills, vocabulary, spelling, and reading comprehension. The least targeted skills were sight word recognition, reading accuracy, narrative writing, and reading speed. Therefore, based on the aforementioned definition, most SASLTs in the study population assess the areas directly affected by DD except for sight word recognition. Sight word recognition is essential to reading comprehension as it allows working memory to be available for understanding text rather than purely for decoding text (Turner, 2012). It is also known to be one of the major diagnostic subtypes of DD, namely eidetic decoding (Shaywitz & Shaywitz, 2005). As such, the SASLTs should prioritise treatment of sight words in the appropriately diagnosed learners.

The only formal tool used by the participants is the DD Screening Instrument (Fawcett & Nicolson, 2004). The DD Screening Instrument is used by 20% of the SASLTs who indicated that they assess DD. This is a very small percentage and indicates that there is a lack of assessment using formal tools for diagnosis. Furthermore, the DD Screening Instrument would not yield a conclusive result as to whether a person presents with DD, as it is not a diagnostic test. The DD Screening Instrument merely indicates whether a full diagnostic test is needed. Therefore intervention for DD cannot be based on the results obtained by this assessment tool. Furthermore, specific diagnoses are not only needed to guide structured literacy instruction for DD (Shaywitz & Shaywitz, 2016), but also for application of accommodations in educational settings (Waterfield & Whelan, 2017).

The results of the study show that 52.6% of the study population treat DD. The main areas treated were phonemic awareness, phonological awareness, auditory processing, phoneme-grapheme association, vocabulary expansion, letter name knowledge, word attack skills, reading comprehension, spelling instruction, narrative writing, and reading accuracy. The less targeted areas were reading speed and sight word recognition. Both sight word recognition and reading speed are cited as being central to reading development (Alexander & Slinger-Constant, 2004; Kuhn et al., 2010) and as such, should be treated in children with reading difficulties.

Limited research is available on the efficacy of specific programmes used by SLTS in the treatment of DD (Démonet et al., 2004). The programmes/approaches used by participants in the study are eidetic (look-say-write) (10%), multisensory approach such as the Orton-

Gillingham Approach (20%), Davis approach (10%), educational approach (10%), Alpha to Omega programme (15%), colour tinted overlays (5%), and other (30%). Respondents were required to indicate whether the programme/approach used yielded results; 81.8% indicated that they achieved moderate to significant improvement. Every individual with DD is unique and no single programme will be effective in treating all learners with DD (Alexander & Slinger-Constant, 2003).

Of the study population only 34.2% of the SASLTs feel moderately to very competent in managing DD. However, 65.8% of the study population felt that the management of DD is the role of the SLT. In practise only 31% of SASLTs assess DD and 52.6% treats persons with DD. These results may be indicative of SASLTs feeling under - equipped in managing this disorder and not carrying out DD-specific assessment and treatment approaches in practice. The SASLTs also felt that more in-depth training would be of benefit to them. Further training will likely increase confidence and knowledge.

Conclusion and Recommendations

The results of the study indicate that the majority of SASLTs do not manage DD, regardless of the ASHA (2010) and SASHLA (2007) position statement and guidelines. Furthermore, the majority of the SASLTs in the study population are not confident in their ability to manage DD. This poor confidence could be due to a lack of training and exposure to this disorder during training. The SASLTs felt that more in-depth training would be of benefit to them. This training should be considered by professional bodies in the field such as the South African Speech-Language-Hearing-Association (SASHLA) and the HPCSA. These bodies should liaise with the Universities in South Africa who offer Speech-Language Pathology courses to consider more in-depth curricula that can address the specific perceived caveats mentioned here. Training could take the form of CPD courses, training at an institutional level, training by other professionals involved in the field of DD and articles relating to DD and the management thereof. All of these areas were considered to be of potential value to the study participants. The proposed training would boost skills and confidence regarding the management of DD among SASLTs and would likely

increase the proportion of SASLTs managing DD.

There is currently a dearth of research regarding the efficacy of treatment strategies followed by SLTs for DD (Démonet et al., 2004). In order for SLTs to provide effective, evidence-based treatment in this field, more research is required by academics and postgraduate students in both the local and international sphere. This is especially true in South Africa where the difficulties of DD are compounded by being educated in a second or third language (Hutchinson et al., 2004). These suggested researchers may further benefit from bodies such as the National Research Foundation (NRF) of South Africa, in terms of grant applications to support such studies.

Limitations of the Study

Participants

The questionnaire was sent to all SLTs registered with SASLHA. SASLHA membership is voluntary and subject to an annual membership fee. As such, only 267 SLTs and SLTAs who indicated a preference for speech-language therapy are members of the organisation. 572 SLTs and 1439 SLTAs are registered with the HPCSA (HPCSA, 2012) and the professionals are not required to indicate a preference regarding area of practice (inter alia speech-language therapy or audiology). These figures indicate that the study population was not representative of the entire SASLT population.

Procedures

Seven of the emails sent out to participants were undelivered and two out-of-office messages were received. This may be indicative of incorrect or phased out email addresses being supplied to SASLHA. It is possible that some of the emails were not received by all the SASLTs included in the study.

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Appendix A: Adaptations to questionnaire after pilot study

Original question:

If you referred any clients with DD in your case load to other professionals, please indicate which professionals (select all relevant).

Comment:

The pilot respondent suggested the addition of ear, nose, and throat specialist; audiologist, and paediatrician.

Final question:

These options were not added as these professionals are not normally associated with the management of dyslexia. Due to the nature of the comment, it seemed that the question had been misinterpreted due to ambiguity. The question was therefore rephrased for transparency and split into two questions: "If you refer any clients with dyslexia in your case load, to which professional(s) do you refer for the diagnosis of dyslexia (select all relevant)" and "If you refer any clients with dyslexia in your case load, to which professional(s) do you refer for the treatment of dyslexia? (Select all relevant)".

Original question:

In the programme/approach in question, do you target the following areas:

Phonological awareness

Phoneme-grapheme association

Letter name knowledge

Sight word recognition

Word attack skills

Auditory processing

Reading comprehension

Vocabulary expansion

Narrative writing

Spelling instruction

Comment:

The respondent suggested the addition of reading accuracy and reading speed as possible assessment areas.

Final question:

The areas reading accuracy (number of words read correctly) and reading speed (number of words correctly read in a specific time) were added to the question.

Appendix B: Final questionnaire: Managing Dyslexia: Practices of Speech-Language Therapists in South Africa

Biographical information

1. In which professional setting are you currently practicing?

    Private practice

    Public hospital

    School

    Special needs school

    Other (please specify)

2. How many years have you been practicing as a speech-language therapist?

3. What is the highest qualification you have obtained?

    Undergraduate

    Honours

    Master's

    Doctorate

4. At which University did you obtain your Speech-Language Pathology degree(s)?

    University of Cape Town

    University of Kwazulu-Natal

    University of Limpopo

    University of Pretoria

    University of Stellenbosch

    University of the Witwatersrand

    Other (please specify)

5. Have you obtained a qualification to conduct dyslexia testing?

    Yes

    No

6. Have you attended any CPD courses or additional training relating to dyslexia?

    Yes

    No

7. If you answered yes to question 6, which of the following areas were addressed (select more than 1 if applicable)

Etiology

Identification

Assessment

Management

Other (specify)

Client related information

8. How many clients in your case load do you suspect to present with dyslexia?

9. How many of the clients in your case load have been diagnosed with dyslexia?

10. If you have clients in your case load who have been diagnosed with dyslexia, which professional made the diagnosis? (select all relevant options)

Educational psychologist

Occupational therapist

Optometrist

Remedial teacher

Speech-Language Therapist

I do not have any clients diagnosed with dyslexia

Other (please specify)

11. Which classification system do you use when diagnosing dyslexia?

Stark-Griffen (dysphonesia, dysnemkinesis, dyseidesia, and combinations)

Boder (dysphonetic, dyseidetic, mixed)

Williams, Stewart, Castles, & McAnally (surface, phonolocial, mixed)

I do not diagnose dyslexia

Other (please specify)

12. Of the clients in your case load who were diagnosed with dyslexia, how many of these did you refer to other professionals for treatment?

13. If you refer any clients with dyslexia in your case load, to which professional(s) do you refer for the diagnosis of dyslexia? (select all relevant)

I do not refer for the diagnosis

Educational psychologist

Occupational therapist

Optometrist

Remedial teacher

Other speech-language therapist

Other (please specify)

14. If you refer any clients in your case load, to which professional(s) do you refer for treatment of dyslexia?

I do not refer for treatment

Educational psychologist

Occupational therapist

Optometrist

Remedial teacher

Other speech-language therapist

Other (specify)

Assessment and diagnosis

15. Do you use formal tool(s) to assess dyslexia?

Yes

No

I do not assess dyslexia

16. Which assessment tool(s) do you use when assessing a client with possible dyslexia?

(select all relevant options)

I do not assess dyslexia

The dyslexia screening instrument

BEDA

Stark-Griffen

Other (please specify)

17. Do you target the following areas as part of your assessment battery for dyslexia?

(Please indicate in the "other" box, if you do not assess dyslexia):

Phonemic awareness (teaches clients to recognize phonemes in spoken words)

Y/N

Phonological awareness (knowledge of the internal structure of words; awareness of rhyme and syllable structure of words)

      Y/N

Phoneme-grapheme association (teaching associations of spoken words to written letters)

      Y/N

Letter name knowledge (teaches the name of upper and lower case letters)

      Y/N

Sight word recognition (training high frequency words by recognizing the shape of the word)   Y/N

Word attack skills (decoding the word into its constituent phonemes in order to read the word)   Y/N

Auditory processing (ability to auditory analyze and synthesize sounds, as well as discriminating between sounds)

      Y/N

Reading comprehension (monitor and encourage understanding of what is read)

      Y/N

Reading accuracy (number of words correctly read in a specific time)

      Y/N

Vocabulary expansion (teaching new words and their corresponding meaning)

      Y/N

Narrative writing (teaching client the structure of a story and guiding them in how to write a story) Y/N

Spelling instruction

      Y/N

Other (please specify)

18. Which programme/approach are you currently using to treat dyslexia?

I do not treat dyslexia

Own programme/approach

Established programme/approach

19. If you use an established programme/approach, which is used? (select all relevant options)

I do not treat dyslexia

I do not use an established programme/approach

Eidetic (look-say-write)

Multisensory approach

Davis approach

Educational approach

The Alpha to Omega programme (Hornsby)

Colour tinted overlays

Other (please specify)

20. If you use your own programme/approach, please provide a brief description:

21. In the programme/approach that you use, do you target the following areas? (Please indicate in the "other" box if you do not treat dyslexia)

Phonemic awareness (teaches clients to recognize phonemes in spoken words)

       Y/N

Phonological awareness (knowledge of the internal structure of words; awareness of rhyme and syllable structure of words)

       Y/N

Phoneme-grapheme association (teaching associations of spoken words to written letters)

       Y/N

Letter name knowledge (teaches the name of upper and lower case letters)

       Y/N

Sight word recognition (training high frequency words by recognizing the shape of the word)

       Y/N

Word attack skills (decoding the word into its constituent phonemes in order to read the word)

       Y/N

Auditory processing (ability to auditory analyze and synthesize sounds, as well as discriminating between sounds)

       Y/N

Reading comprehension (monitor and encourage understanding of what is read)

Y/N

Reading accuracy (number of words correctly read in a specific time)

Y/N

Vocabulary expansion (teaching new words and their corresponding meaning)

Y/N

Narrative writing (teaching client the structure of a story and guiding them in how to write a story)

Y/N

Spelling instruction

Y/N

Other (please specify)

22. What level of improvement do you feel your clients achieved using the programme/approach that you use?

No improvement

Some improvement

Neutral

Moderate improvement

Significant improvement

23. When treating clients with dyslexia, do you collaborate with other role-players involved in the client's life (e.g., teacher, parent, occupational therapist, colleagues etc.)?

Y/N

24. If you answered yes to question 23, which role players do you collaborate with? (Select all relevant options)?

Y/N

I do not treat dyslexia

Teacher(s)

Parent(s) or guardian(s)

Occupational therapist

Colleagues

Educational psychologist

Optometrist

Other (please specify)

Personal views regarding the management of dyslexia

25. How competent do you feel regarding the treatment of dyslexia?

Not at all

Somewhat

Neutral

Moderately

Very

26. To what extent do you agree with the following statement: "Management of dyslexia is the role of the speech-language therapist"

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

27. Do you think training institutions should better equip speech-language therapists to manage dyslexia?

Y

N

Not sure

(If yes, please elaborate).

28. Do you think the professional bodies associated with speech-language therapy (e.g., SASHLA) should provide more information, training, or other support for the management of dyslexia?

Y

N

Not sure

(If yes, please elaborate)

29.0 Do you feel you would benefit from any of the following options:

Dyslexia training at tertiary level

Y/N

Workshop in dyslexia as part of CPD

Y/N

Articles relating to dyslexia and relevant management practices

Y/N

Training by other professionals involved in the field of dyslexia

Y/N

Other (please specify)