5th MSc (Speech & Language Pathology)
Student Research Seminar

Friday, 4th December 2020
1500hrs – 1800hrs

5th MSc (Speech-Language Pathology) Student Research Seminar

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Abstract 1

"Where Words Fail, Music Speaks": A Systematised Review of Using Music To Treat Post-stroke Aphasia

Agnes Tay Wen Ting

Background: Aphasia occurs in at least a third of stroke cases. While the use of music in aphasia rehabilitation for stroke survivors has been widely researched over the past 30 years, a review of the extant literature involving a speech-language pathologist (SLP) using musical elements, and/or collaborating with a music therapist (MT), has not been conducted.

Aim: To identify and evaluate the ways musical elements, or collaboration with an MT, have been used in speech-language therapy (SLT) for individuals with post-stroke aphasia.

Methodology: A systematised search was conducted across seven electronic databases (CINAHL, Embase, ERIC, LLBA, PsycINFO, PubMed, and SCOPUS) with pre-determined search terms based on three main concepts: 1) adult individuals with post-stroke aphasia, 2) speech and language therapy, and 3) music therapy. Inclusion and exclusion criteria were based on the type of study, participants, and intervention, as well as intervention targets and outcome measures. From 173 publications identified, 30 relevant papers were used to examine patient characteristics, types of music-based intervention, outcome measures used, and effectiveness of intervention.

Results: Studies mainly included participants with diagnoses of non-fluent aphasia, secondary to a left-hemisphere stroke. Melodic Intonation Therapy was the most commonly used form of intervention. Other musical elements used in treatment include rhythm and intonation. Outcome measures comprised various standardised language assessments (e.g. the Aachen Aphasia Test, Western Aphasia Battery, and Boston Diagnostic Aphasia Examination). The effectiveness of intervention methods among the studies was based on a mixture of clinical significance and statistical significance.

Conclusion: The majority of studies reviewed reported positive treatment outcomes, but caution is advisable with respect to the relative effectiveness of methods applied, and the sources of bias. Suggestions for future research in this area are provided.

Abstract 2

Effectiveness of Communication Partner Training for Children who use AAC: A Systematised Review

Alvina Tan

Background: Children with complex communication needs (CCN) often face participation barriers when using augmentative and alternative communication (AAC) - e.g., communication partners (CP) with weak skills, limited knowledge, or negative attitudes (Moorcroft, Scarinci, & Meyer, 2018). Researchers report that CP training is effective in reducing these barriers (Kent-Walsh, Binger, & Hasham, 2010), yet many focus on evaluating content (e.g., AAC strategies), and neglect other components (e.g., context/mode of delivery).

Aim: To evaluate existing case studies and provide insight into CP training, and identify the key components that are likely to be valuable in reducing participation barriers.

Method: A systematic search across eight databases (i.e. CINAHL, CMMC, EMBASE, ERIC, LLBA, MedLine, PsycInfo, Scopus) yielded 5,802 records, of which 21 single-case studies met predetermined inclusion and exclusion criteria, and were subsequently reviewed using the RCSLT Clinical Handbook checklist. Qualitative analysis involved the following: (1) documenting and comparing the content, context, and mode of delivery of existing CP training for AAC users; (2) examining the extent to which existing CP training addresses participation barriers (i.e., skill, knowledge, attitudes).

Results: When training CPs of children with CCN who use AAC, the most common strategy for effective training was aided language stimulation (ALS). The home setting, during the child's playtime, was often chosen, and participants were mostly instructed verbally with demonstrations and/or controlled practice.

Conclusions: The design of effective training for CPs should incorporate three key components: content, context, and mode of delivery. Helping CPs to become more competent and confident in using AAC strategies requires a holistic approach.

Abstract 3

Effectiveness of Parent and Teacher Reports in Evaluating Children's Language: A Systematised Review

Caryl Tan Eng Yong

Background: Parent and teacher reports are routinely used for evaluating preschoolers' language abilities (e.g., Pua, Lee & Rickard Liow, 2017), but a comprehensive review has not been conducted on their effectiveness.

Aim: To conduct a systematised review to investigate whether parents and/or teachers are able to accurately evaluate children's language abilities.

Method: Systematic searching of three databases (Pubmed, Scopus, LLBA) using a range of search terms for teacher and parent reports, and language development or developmental language disorders, yielded 3433 publications. Of these, 31 eligible studies on children from 5 months to 9 years 1 month were identified. The methods and findings of these studies were reviewed for risk of bias using the Critical Appraisal Skills Programme (CASP) checklist, and then qualitatively analysed.

Results: The majority of parent reports provided effective evaluations of children's language with evidence of diagnostic accuracy and validity, but there were mixed findings for teacher reports. Factors such as the age of the child, informant characteristics, report format, report items, reference standards and language population appear to influence reporting effectiveness.

Conclusions: Findings indicate the effectiveness of parent reports and mixed findings for teacher reports for both monolingual and multilingual populations. However, many of the studies in this review are at risk of bias (partial verification, detection, and selection bias) and some have unclear methodology which may have led to over or underestimation of accuracy.

Abstract 4

Towards Implementing Dysphagia Screening for Older Adults: A Systematised Review

Cherisse Chong Qingyun

Background: Despite dysphagia being common among older adults due to multiple impairments and comorbidities, there is a lack of validated dysphagia screening protocols (DSPs) for the geriatric population. In acute settings, DSPs can facilitate early dysphagia screening and appropriate referral to a Speech Therapist, thereby minimising the risk of malnutrition and aspiration pneumonia.

Aim: To conduct a systematised review examining extant DSPs validated for stroke and geriatric populations, and to evaluate their applicability for hospitalised geriatric patients in Singapore, and with similar populations.

Method: A database search of PubMed, Scopus and CINAHL on 20 May 2020 identified 22 eligible studies between 2000 to 2019, after excluding 1,725 studies. The design of the DSPs, their psychometric properties, as well as methodological quality and applicability for the local geriatric population were examined.

Results: Most DSPs reported a pre-swallow component (19/22 studies) and a water swallow test (WST) of at least 30ml (18/22 studies). Coughing and voice change were the most common signs of aspiration included in the DSPs. Nevertheless, only a few studies (4/22 studies) showed high methodological quality as well as high diagnostic accuracy. Out of these 4 studies, three included only WSTs, without food trials.

Conclusion: The findings from the systematised review hold implications for the development and validation of a DSP for the geriatric population in Singapore and elsewhere, such as the inclusion of a pre-swallow component and key signs of aspiration. In particular, the results also suggest that WSTs alone, without food trials, is sufficient for good sensitivity.

Abstract 5

Effects of Valence and Social Engagement on Emotional Language Production in Adults with ASD

Daniel Chew Kai Mun

Background: During typical emotional development, the processing of emotion and social information are closely intertwined (Peterson et al., 2012). However, research on emotional language production in adults with autism has yet to examine the effects of valence and social engagement (Uljarevic & Hamilton, 2013).

Aim: To extend Teh et al.'s (2018) research on children by exploring how adults with Autism Spectrum Disorders (ASD) process emotions depicted in line drawings of everyday situations.

Method: A free-response picture description task (Pictures with Social Context and Emotional Scenes –PiSCES, Teh et al., 2017) was administered to adults with ASD (*N*=9) and their performance in terms of percentage of emotional terms was compared to that of typically developing (TD) adults (*N*=20).

Results: The results of a two-way within-subjects ANOVA (positive/negative valence x high/low social engagement) showed that both TD adults, and those with ASD, produce more emotion terms when there is low social engagement in positive valence situations than in negative valence situations. However, TD adults also produce more emotion terms where there is more social engagement in negative than in positive valence pictures.

Conclusions: Adults with ASD and TD share broadly similar patterns in emotional language production, but differences are mediated by an interaction between emotion valence and social engagement. Implications for clinical practice will be discussed.

Abstract 6

Language Development in English-Mandarin Bilingual Children: A Systematised Review

Felicia Poh Lay Sin

Background: Language development is driven by cognitive mechanisms and environmental influences (Sun, Yin, Amsah, & O'Brien, 2018). For bilingual children, language experience and cross-linguistic transfer may result in different language outcomes (Hoff & Core, 2013). Clinicians need to be aware of factors associated with language development in specific bilingual populations.

Aim: To synthesise research findings published between years 2000 and 2020 on oral language outcomes of English-Mandarin bilingual children aged 7 years and below.

Method: Systematic search of four electronic databases (PubMed, Scopus, LLBA, ERIC) identified 854 unique papers in peer-reviewed journals, and 33 of these met the predetermined inclusion (typically-developing English-Mandarin bilingual children aged ≤7, oral language outcomes) and exclusion criteria (known neurodevelopmental diagnoses, adoption, immigrant, experimental, intervention studies, case series, case studies). The methodological characteristics and research findings of each of the 33 studies were reviewed using adapted RCSLT/CASP checklists.

Results: Qualitative analysis revealed three main categories of factors associated with English-Mandarin bilingual children's oral language outcomes: internal factors (metalinguistic awareness, cognitive capacities), external factors (home language practices, relative language exposure) and linguistic factors (phonological proximity, morphosyntactic differences). The relative importance of internal and external factors was found to be dependent on the children's language learning context – whether the language is predominantly used in the community where they reside.

EBP implications: Results highlight the interplay between internal, external and linguistic factors on English-Mandarin bilingual children's language development. Obtaining accurate information on these factors would assist clinicians in making accurate judgments of bilingual children's language abilities. Clinicians should bear in mind the influence of local variants of the languages on children's language presentations.

Abstract 7

Language Outcomes of Oral Unimodal Bilingual Children with Hearing Loss: A Systematised Review

Genevive Chan Keng Ling

Background: Many children with hearing loss (CwHL) grow up in multilingual environments and are expected to learn more than one spoken language. Professionals are divided in their views on whether CwHL can acquire adequate proficiency in both their spoken languages.

Aim: To review studies investigating the language outcomes of oral unimodal bilingual CwHL (bilinguals in two spoken languages) by comparing them to monolingual CwHL and children with normal hearing (CwNH).

Method: A systematic search yielded 2362 records from six databases (LLBA, ERIC, PsycInfo, PubMed, CINAHL and Embase) using keywords/MeSH terms related to hearing loss, language development, and bilingualism. Full-text articles (*N*=16) examining language outcomes of children who are exposed to at least two spoken languages were analysed using the Critical Appraisal Skills Programme (CASP) and the Royal College of Speech and Language Therapists (RCSLT) Clinical Handbook Checklist.

Results: The studies show mixed findings. Although seven out of the 16 reported that bilingual CwHL outperformed, or showed no significant difference from, monolingual CwHL or CwNH, the remaining nine studies reported poorer performance by bilingual CwHL. However, most of the research appears to have a moderate to high risk of bias: selection, detection and rater bias, poor control of confounders, and a lack of objective measures for the child's second language.

Conclusions: In addition to the biases identified, the heterogeneity of the population with hearing loss, and the variety of language combinations of bilinguals, may have contributed to the lack of conclusive results regarding the language outcomes of bilingual CwHL. More work on oral unimodal bilingual CwHL, which addresses the identified biases, is needed in order to draw reliable conclusions about their language outcomes.

Abstract 8

Should We Let Music Do The Talking? A Systematised Review on Using Music in Speech and Language Therapy

Ivy Quah Tian Hui

Background: Music is an effective medium for improving speech and language, motor, and cognitive functions in various diagnoses and across age groups (Eady & Wilson, 2004). With the number of children with special needs increasing in Singapore, it is vital to have both cost- and time-effective services to meet the growing demands for therapy.

Aims: (1) To conduct a systematized review to investigate the efficacy of music in speech and language therapy (SLT) in treating speech, language, and communication problems in children with special needs; (2) To investigate differences in treatment outcomes between SLT-MT (Music Therapy) co-treatment and SLT or MT treatment models for children with special needs.

Method: A systematic search of nine electronic databases: (1) Scopus; (2) CINAHL; (3) Embase; (4) PsycINFO; (5) ERIC; (6) Pubmed; (7) RILM abstracts of music literature; (8) Linguistics & Behavior Abstract; (9) Google Scholar, and handsearching was conducted, using these search terms: "Music Therapy", "Speech and Language Therapy", and "Children with Special Needs." The search yielded 1120 publications and 13 of these met the predetermined inclusion criteria: (1) Children with Special Needs had to be diagnosed with Autism Spectrum Disorder, Intellectual Disability, Cerebral Palsy, Down Syndrome, Global Developmental Delay, and Acquired Brain Injury; and (2) Interventions had to include both the SLT and MT; SLTs using music in therapy; or MTs intervention targeting speech, language, and/or communication deficits. Studies involving children with speech and language delays/disorders only were excluded in this review. The findings and methodological characteristics of each study were reviewed using the RCSLT Clinical Guidelines Tool.

Results: Based on six studies involving SLT-MT co-treatment models, six studies involving MT only, and one study involving ST only, we found that music is an effective tool that clinicians can use in their therapy to promote improvements in language, speech and communication in children with special needs. Selection bias and detection bias were identified in this systematic review.

Conclusions: With the growing demand for therapy, clinicians can use music as an element to enhance their practice to improve speech, language, and communication for individuals, thereby improving the overall quality of life for them and their families.

Abstract 9

Relationship Between Validated Self-Reported Questionnaires And Clinical Diagnosis of Voice: A Systematised Review

Jezebel Lo Zhi Qi

Background: Voice disorders affect 3-9% of the general population at any one point in time and are associated with reduced physical, social, emotional health, and economic status (Roy, Merrill, Gray & Smith, 2004, Roy, Merrill, Thibeault, Gray & Smith, 2005). Traditionally, clinical voice assessments focus on the severity of impairment but priority is now being given to the use of self-report measures for assessing functional status. Studies examining the relationship between self-reports and diagnostic measures have not shown consistent results, and therefore warrant review.

Aim: To investigate the relationship between validated self-reporting questionnaires (e.g. VHI, VRQOL, and VoiSS) and clinical diagnosis measures (auditory-perceptual analysis, instrumental, acoustic, and aerodynamic) in the assessment of voice disorders.

Method: A systematic search of four databases (PubMed, EMBASE, Scopus, and CINAHL) identified 2879 records prior to 2nd June 2020. Studies were included if they compared validated self-reported voice assessment measures with clinical diagnosis measures - either auditory-perceptual analysis, instrumental, acoustic, or aerodynamic measures of voice in the adult population while all treatment studies were excluded. Of the 2879 studies, 33 met these inclusion and exclusion criteria and were evaluated in detail using the Royal College of Speech & Language Therapists Clinical Guidelines (RCSLT) checklist as a guideline.

Results: Self-report scores show mostly absent or weak correlations ($r < .3$) with all clinical diagnosis measures (71% of the studies). However, auditory-perceptual analysis show higher correlations ($r > .4$) with self-report scores for 53% of the studies compared to acoustic (26%), aerodynamic (0.6%), and instrumental measures (36%).

Conclusions: Weak correlations between self-report measures and clinical diagnosis measures indicate that clinicians and clients are often assessing different aspects of voice. Clinicians monitor the impact of any disorder on physiology (e.g., perturbation, muscle activity) whereas client report is based on the perceived functional impact of the disorder. Both measures are important for a comprehensive and integrated holistic voice assessment.

Abstract 10

Aided AAC Intervention for Children with Complex Communication Needs: A Systematised Review

Kimberly Nai Shi Ting

Background: Children with intellectual, developmental, or multiple disabilities, often have complex communication needs (CCN) (Blackwell et al., 1989). A meta-analysis (Ganz et al., 2017) and systematic quality review (Morin et al., 2018) have shown that high-tech aided Augmentative and Alternative Communication (AAC) intervention improves communication in children with CCN. However, no review has been carried out for low-tech AAC interventions for children with intellectual, developmental or multiple disabilities even though participant and intervention characteristics, including type of AAC, can influence outcome (Ganz et al., 2012; Snell, Chen & Hoover, 2006).

Aim: To examine the overall effect of high and low-tech AAC intervention on communication, and how treatment outcome might be influenced by participant and intervention characteristics.

Method: A systematic search was conducted across five databases (PubMed, Scopus, PsycINFO, ERIC ProQuest and CINAHL) for single case studies and 924 records were identified. Of these, 19 studies met predetermined inclusion and exclusion criteria for detailed review and qualitative appraisal, using the RCSLT Clinical Handbook checklist.

Results: Single case studies data for the 27 children reported in the 19 studies showed positive outcomes for communication skills using high and low-tech AAC but only 10 out of the 14 children followed up showed generalisation and maintenance in their communication skills. Risks of selection and detection bias were found in many of the studies reviewed.

Conclusion: Teachers, parents and peers can be effective interventionists. However, more research is needed in natural communication settings to enhance maintenance and generalization across all contexts.

Abstract 11

Biomarkers and Cognitive-Linguistic Deficits in Systemic Lupus Erythematosus: A Systematised Review

Low Shyan Huey

Background: Systemic Lupus Erythematosus (SLE) is an autoimmune disease. Neuropsychiatric SLE (NPSLE) involves 19 neuropsychiatric (NP) syndromes, and is associated with over 20 autoantibodies. Deficits in cognition and language have been reported in children and adults with SLE (e.g., Leslie & Crowe, 2018; Villanueva et al., 2017; Wyckoff, Miller, Tucker, & Schaller, 1995) and so a better understanding of the inter-relationships is needed to optimise evidence-based practice.

Aim: To evaluate the association of SLE biomarkers with known deficits in cognition and language by comparing the adult and adolescent populations.

Method: A systematic search was conducted on 21 May 2020 using four databases: PubMed, Scopus, PsycInfo and CINAHL. This search yielded 1356 records, of which 42 met the inclusion criteria (SLE/NPSLE diagnosis, cognition and language outcomes with formal assessments, and biomarkers' association with outcomes), and exclusion criteria (e.g., focus on other neuropsychiatric manifestations, no formal assessments).

Results: Anti-phospholipid antibodies are the most well-studied biomarkers and significant associations have been found with various cognitive deficits in adults. Anti-nuclear antibodies, anti-neuronal antibodies, and anti-ribosomal P showed mixed findings in relation to cognitive deficits. Some studies of adolescents reported an association of S100-β and anti-ganglioside with cognitive impairments. Limited studies showed association of biomarkers and verbal language abilities in adults. One study reported negative correlation of anti-dsDNA with verbal fluency and another on severe verbal deficits for patients with CSF IgG. Selection, detection, attrition, and reporting biases were apparent amongst the 42 studies.

Conclusions: Identification of biomarkers is crucial for early intervention, especially in developing adolescents, but further work is needed to consolidate extant findings.

Abstract 12

Interventions for Developing the Narrative Structure of AAC Users and Those with ASD or DLD: A Systematised Review

M Sharni

Background: Narratives are very important in both social and educational settings. The narratives of those who use AAC, and those who have been diagnosed with ASD or DLD, often lack cohesion, story elements, and story complexity (e.g., Hessling & Schuele, 2020).

Aim: To conduct a systematised review to investigate the effectiveness of the narrative intervention programmes employed with clients who use AAC, or have been diagnosed with ASD or DLD.

Method: Systematic searching of seven electronic databases (PubMed, SCOPUS, Embase, PsycINFO, LLBA, CINAHL and ERIC) yielded 9,245 records of which 24 papers met the predetermined inclusion criteria (narrative macrostructure, narrative microstructure, grammatical/linguistic complexity, story elements, grammar, complexity, organisation and cohesion of narratives, and narrative vocabulary, in either written, oral or conversation) and exclusion criteria (pragmatic components of sharing narratives). For each study, findings and methodological characteristics were reviewed.

Results: The teaching of story grammar improved the overall narrative quality in all three populations. Groups differed in the most effective focus of intervention: ASD - perspective-taking interventions; DLD - narrative microstructure; and AAC users – multi-component narrative intervention targeting both narrative macrostructure and microstructure.

Conclusions: The findings hold implications for evidence-based practice but the presence of possible reporting, performance and detection bias in many of the studies, together with the considerable heterogeneity amongst the participants, suggests that further research, with more controlled and rigorous experimental methods, would be worthwhile. Moreover, it remains unclear from the studies reviewed whether positive outcomes from effective intervention programmes generalise to naturalistic social and educational settings.

Abstract 13

Literacy in Children with Lupus and Offspring of Lupus Mothers: A Systematised Review

Pamela Koh Yong Zhen

Background: Systemic Lupus Erythematosus (SLE) is a chronic, autoimmune disease that results in inflammation of organs. It can affect children and adolescents (below 18 years old) directly, i.e., childhood-onset SLE (cSLE), or indirectly, as offspring of mothers with SLE. Although cognition can be adversely affected by SLE (e.g., Williams et al., 2011; Yousef Yengej et al., 2017), researchers have not yet assessed its impact on reading and writing abilities systematically.

Aim: To investigate whether the cSLE population and the offspring of mothers with SLE experience literacy difficulties compared to healthy controls.

Method: Systematic searching of four electronic databases (Embase, PsycINFO, PubMed, Scopus) identified 5,154 records, 20 of which met pre-determined inclusion (cSLE population and offspring of mothers with SLE) and exclusion (adult populations, studies that employed non-standardized cognitive, language and literacy assessments) criteria. The findings and methodological characteristics of these 20 publications were reviewed using the Critical Appraisal Skills Programme (CASP), and their level of evidence was assigned using the Oxford Centre for Evidence-Based Medicine (CEBM).

Results: A higher prevalence of learning disabilities has been reported for the offspring of mothers with SLE population compared to healthy controls, but no significant difference in literacy abilities has been reported for the cSLE population compared to healthy controls. Across the 20 studies, there was evidence of selection, detection and attrition biases.

Conclusions: The inconsistent findings for literacy development in the offspring of mothers with SLE and the cSLE population warrant more detailed research given existing biases.

Abstract 14

Normative Data for TOMASS (The Test of Masticating and Swallowing Solids) to Support Clinical Management of Dysphagia In Older Adults Living in Singapore

Roger Chang Chiau Siang

Background: Clinicians are often obliged to rely on subjective swallowing assessments to diagnose dysphagia in older adults with neurological disorders. Athukorala et al., (2014) demonstrated that the Test of Masticating and Swallowing Solids (TOMASS) supports the identification of swallowing impairments objectively and quantitatively. However, normative data for TOMASS was found to be region sensitive (Huckabee et al., 2018), and therefore local sampling is important.

Aim: To collect and establish normative data for TOMASS on healthy adults aged between 61 and 80 years old living in Singapore, under two eating conditions (speeded and normal pace) and to test whether TOMASS variables are affected by gender. Normative data for speeded eating pace provides insights into a person's maximal masticatory functions, while the data for normal eating pace will be useful for evaluating the mastication and swallowing of a solid bolus under normal conditions.

Method: Sixty healthy neurotypical Singaporean males ($n = 30$) and females ($n = 30$), aged between 61 and 80 years, were asked to ingest two biscuits according to one of two possible instructions presented in a counter balanced order: (1) Eat as fast as comfortably possible, (2) Eat as you normally would.

Results: Data on total time taken to consume each biscuit, number of bites, swallows and masticatory cycles per biscuit, were collected for each participant, and tabulated by age and gender. Results showed that females generally took more bites, masticatory cycles, swallows and time per cracker than males.

Conclusion: Local normative data, presented by gender, for the TOMASS has enhanced its potential to support the clinical management of dysphagia.

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Abstract 15

Efficacy of Conversation Partner Training in Mandarin for Bilinguals with Aphasia

Rosabel Tay Yu Ling

Background: Many language interventions are impairment-based but understanding interactions between people with aphasia (PWA) and their Conversation Partners (CPs) can help improve functional communication and alleviate negative feelings (Wilkinson, 2014). Thus far, no study has focused on bilingual populations or used Mandarin in conversation partner training (CPT).

Aims: (1) To investigate the impact of using the Better Conversations with Aphasia (BCA) programme (Beeke, Sirman et al., 2013) in Mandarin on communicative functions in conversation, and (2) To explore whether BCA promotes generalisation across linguistic levels, and across maximally contrasted languages such as Mandarin and English.

Method: A multiple-baseline, single case experimental design was employed with two separate English-Mandarin speaking dyads (DW and YT, and their respective Conversation Partners). Each dyad received twice-weekly BCA therapy for ten weeks. In addition to the primary assessment of conversational effectiveness (i.e., facilitators and barriers), language ability was examined using single-word naming (N=140, 70 nouns and 70 verbs), a picture description task, the CAT disability and the Communicative Effectiveness Index questionnaires. These measures were administered before treatment, immediately post treatment, and four weeks after treatment in order to assess maintenance.

Results: Both dyads showed a significant decrease in the number of barriers in conversation. For DW, significant improvements were evident in single-word naming for English verbs, but no positive effects were found on the picture description task for either DW or YT. Functional ratings improved for DW's dyad but not for YT's dyad. Generalisation effects from Mandarin to English were found within the picture description task for DW, while generalisation across linguistic levels within Mandarin, from conversation to word-level, was observed for YT.

Conclusions: BCA in Mandarin has the potential to improve conversational ability and hence functional communication. However, generalisation across linguistic levels and contrasting languages may be influenced by several factors, including the participant's aphasia profile and severity, as well as the PWA-CP relationship.

Abstract 16

Emergent Literacy Development in Children with Hearing Loss: A Systematised Review

Ruth Lee En-Yi

Background: Extant research consistently shows poor literacy outcomes amongst school children with hearing loss (CwHL) compared to children with normal hearing (CwNH), (e.g.,; Geers & Hayes, 2011; Whitehurst & Lonigan, 1998), with some attributing this to poor emergent literacy in kindergarten.

Aim: To investigate how emergent literacy skills differ between CwHL and CwNH in kindergarten in order to inform evidence-based practice.

Method: Systematic searching of four databases (ERIC, LLBA, PubMed, PsycInfo) and manual references identified 1647 records. A total of 17 eligible studies on children met the predetermined inclusion criteria (3;0 – 6;11 years old CwHL, assessed on measures of emergent literacy) and exclusion criteria (non-primary research, co-morbidity in neurodevelopmental disorders). The methods and findings of these studies were reviewed for risk of bias using the CASP and RCSLT Clinical Handbook checklists, and then analysed qualitatively following the PRISMA framework.

Results: In 8 of the 17 studies reviewed, CwHL were consistently weaker than CwNH on measures of phonological awareness and oral language, but there were mixed findings on measures of print knowledge. Factors such as hearing loss severity, type of amplification device, and mode of communication, can influence emergent literacy outcomes. However, the heterogeneity of the types of amplification or mode of communication used by the participants across 17 studies may have limited the generalizability of results to a larger hearing loss population.

Conclusions: CwHL exhibit weak foundations for emergent literacy development in kindergarten and face challenges catching up with CwNH. More research is needed on the different modes of communication used by CwHL and their impact on literacy.

Abstract 17

Systematised Review: Effect of AAC Intervention on Social Communication Beyond Requesting in ASD

Sadhana D/O Samy

Background: A systematic review (Logan, Iacano & Trembath, 2017) has shown that Augmentative and Alternative Communication systems (AAC) can improve social communication skills in children with Autism Spectrum Disorder (ASD). However, 73% of the studies reviewed focused on *requesting skills* as the outcome measure for social communication, even though social communication deficits in children with ASD impact a wide range of communicative functions.

Aims: (1) To examine the impact of AAC interventions on the social communication skills, other than requesting, in children with ASD; (2) To investigate differences in social communication outcomes, other than requesting, in peer- and teacher/therapist-mediated AAC interventions.

Method: A systematic search of four databases (Pubmed, CINAHL, Scopus and Psychinfo) yielded 890 records, of which 23 published articles were identified after the predetermined inclusion and exclusion criteria were applied. The findings and methodological characteristics of each study were qualitatively appraised using the RCSLT Clinical Handbook checklist.

Results: For 20 out of 23 articles showed that AAC interventions resulted in improvements in social communication functions other than requesting. However, there was individual variability in the improvements attributable to previous exposure to AAC as well as the presence of comorbid conditions. There were no differences between peer-mediated and teacher/therapist-mediated AAC intervention on social communication outcomes other than requesting. A common confounding factor appears to be the communication partners' behavior directed towards the participants.

Conclusions: AAC interventions are an effective means of improving social communication outcomes other than requesting in children with ASD. Both peer-mediated and teacher/therapist-mediated strategies can be used. More well-designed research on AAC interventions beyond requesting alone is needed.

Abstract 18

Efficacy of Verb-in-Sentence Treatments in Aphasia: A Systematised Review

Shanice Chia Pei Shan

Background: Sentence-level treatments using verbs are likely to result in greater generalisation to sentence production than word-level treatments for people with aphasia (Webster & Whitworth, 2012). This is because verbs heavily influence sentence production due to embedded syntactic features and argument structures (Garrett, 1988; Levelt, 1989).

Aim: To review aphasia intervention programmes focusing on verbs within sentence contexts, and to evaluate their efficacy in terms of generalisation within and across languages, and across linguistic levels in bilinguals.

Method: A systematised search of six electronic databases up to 12 June 2020 (Pubmed, Embase, Scopus, Psycinfo, LLBA, CINAHL) identified 1286 records in total. Twenty-two of these met the predetermined inclusion and exclusion criteria and were reviewed (using RCSLT checklists) in terms of trained verbs and untrained words at word- and sentence-level, functional communication and cross-language generalisation.

Results: Weak statistical evidence was found in most studies (77%) but improvements in trained verbs (86% of participants), untrained words (54% of participants), and connected speech (64% of participants) have been reported. There is insufficient data on improvements in functional communication, and the results for cross-language generalisation (in 27% of the studies) remained inconclusive. Risk of reporting bias was found in 77% of studies, while risks of spectrum and selection bias were found across studies.

Conclusions: Thus far, research suggests limited or inconclusive findings for the efficacy of verb-in-sentence interventions for people with post-stroke aphasia. More work is needed in different bilingual populations before conclusions can be drawn about cross-language generalisation.

Abstract 19

A Mandarin Core Lexicon for Singapore Mandarin Speakers

Tan Seok Hui

Background: A recent approach to measuring functional communication has been to assess the discourse of persons with aphasia (PWAs) against a checklist or core lexicon generated by unimpaired neurotypical speakers, using the core lexicon as a clinical marker of communication difficulties.

Aim: To establish a Mandarin core lexicon to develop local discourse measures and intervention programmes for Mandarin speakers in Singapore.

Method: In both Mandarin and English, unimpaired adults (*N*=66) aged 21 to 80 years described 50 culturally relevant pictures depicting everyday scenarios (Teh, Yap, & Rickard Liow, 2018). Participants' cognitive functioning was screened using the Montreal Cognitive Assessment (MoCA, Nasreddine et al., 2005), and receptive and expressive vocabulary assessed in both languages using the Bilingual Language Assessment Battery (BLAB, Rickard Liow & Sze, 2009). Participants completed a language background questionnaire to assess the relative ranking of Mandarin and English from daily language use and age of acquisition.

Results: A 100-item core lexicon was compiled from the 50 most frequently used nouns and verbs. The core lexicon included functional nouns (e.g., book, phone) and basic level verbs (e.g., look, tell), with lexical diversity showing a high degree of overlap across age.

Clinical Implications: The Mandarin core lexicon provides the clinician with a time- efficient, and culturally and linguistically relevant checklist for assessing functional communication. Findings support the use of picture scenes for generating a core lexicon, and demonstrate the importance of generating core lexicons from language samples, due to lexical diversity being shaped by linguistic features unique to the language.

Abstract 20

English Core Lexicon for English-Mandarin Bilinguals Adults in Singapore

Tan Yi Xian

Background: The use of a core lexicon list is an effective and efficient method of assessing the discourse abilities of people with aphasia (PWA) and for planning intervention programmes (MacWhinney, Fromm, Holland, Forbes, & Wright, 2010). Available lists for English were developed overseas and may not be culturally appropriate and/or take into account the lexical diversity in Singapore.

Aim: To establish an English core lexicon of nouns and verbs representative of the language used by healthy Singaporean English-Mandarin bilingual adults from three different age groups.

Method: Sixty-eight healthy adults (HAs) across three age groups: HA1 (n= 30, 21-40 years), HA2 (n= 16, 41-60 years), HA3 (n= 23, 61-80 years) were asked to describe 50 PiSCES line-drawings (Teh, Yap, & Rickard Liow, 2018) of everyday situations. The resulting language samples were transcribed, and frequency counts for each word were used to establish a core lexicon list of 50 nouns and 50 verbs.

Results: As expected, the core lexicon list of 50 nouns consisted of concrete words, mostly people and objects (e.g., boy, girl, bus, cake), and likewise the core lexicon list of 50 verbs consisted of higher-frequency words (e.g., play, read, eat). Percent agreement of core lexicon lists was similar across the three age groups.

Conclusion: The new English core lexicon list could be used to support evidence-based practice when speech-therapists assess the functional communication of Singaporean English-Mandarin bilingual adults with aphasia, and for designing intervention programmes.

Abstract 21

Intervention in the Preschool Classroom by Speech and Language Pathologists: A Systematised Review

Teo Mun Ching

Background: Speech and Language Pathologists (SLPs) are often involved in classroom-based intervention programmes in the preschool settings, for young children with different levels of developmental needs (Ebbels et al., 2019; Montgomery, 2008). Evaluating the effectiveness of these programmes facilitates evidence-based practice.

Aims: To conduct a systematised review examining the characteristics of the intervention programmes in the classroom, how SLPs are involved, and the efficacy of these intervention programmes on child outcomes in the areas of communication, language, and learning.

Method: A systematic search of six electronic databases (PubMed, Scopus, PsycINFO, CINAHL, LLBA, ERIC) yielded 1474 records. Data from 20 published articles met the eight predetermined inclusion and exclusion criteria, and were analysed qualitatively.

Results: Study designs in the 20 articles include randomised and non-randomised control trials, before-after studies within groups, and case studies. Most researchers reported positive child outcomes in areas of communication, language and learning, but the involvement of the SLP varies across studies, and there is heterogeneity in child characteristics, intervention frequency and length, type of intervention, and the outcome measures used.

Conclusions: The evidence on classroom-based intervention in the preschool settings appears promising. Reporting and selection bias appear inevitable, so the results need to be interpreted with caution.

Abstract 22

The Effects of Language Dominance on Bilingual Phonological Development: A Systematised Review

Yvonne Lam Li Ting

Background: There is a lack of research on the phonological development of bilingual children in Asia where the two languages are often contrasting. Moreover, it is important for Speech and Language Therapists to understand the role of language dominance on bilingual phonological development in order to provide accurate diagnosis and evidence-based speech and language services to the bilingual children.

Aim: To understand the phonological development of bilingual preschool children with different types of language dominance, and the impact of the dominant language on phonological development in the non-dominant language, and vice versa.

Method: A comprehensive systematised search of four electronic databases (Scopus, CINAHL, LLBA, ERIC) and the institutional repository of the National University of Singapore (ScholarBank @ NUS) yielded 2,927 records, and 22 of these met predetermined inclusion and exclusion criteria with reference to bilingual children between 2;1 and 6;11 (years; months). In the studies reviewed, all the children had acquired English or at least one Asian language commonly used in Singapore (i.e., Mandarin, Malay or Tamil).

Results: A qualitative analysis revealed that language dominance effects manifest in the phonological processes, phoneme accuracy, and phonetic inventory of bilingual preschool children. Findings suggest interference effects of the dominant language on the non-dominant language, and vice versa. However, the studies reviewed included risks of detection bias (n=22), selection bias (n=7), assignment bias (n=2), reporting bias (n=1), and attrition bias (n=1).

Conclusions: The effects of language dominance need to be considered when assessing bilingual children's phonology. Ideally, speech assessments on bilingual children should be administered in the child's dominant and non-dominant languages in order to inform accurate diagnosis and evidence-based treatments. Future research should work on establishing normative data for subgroups of bilingual children with different language dominance and language pairs.