***The scoping review section***

Notes for the writer. Please leave the works written in red as they are.

This the results section of a scoping review that I have carried in a particular topic area. As it is I a scoping review which is different the normal literature review it needs to be reported a bit differently which I have done over 15 times now. But my supervisor is still unhappy with how the findings are reported, As it was a scoping review, According to my supervisor, it is a big shopping list, and the study results do not connect with each other and do not provide a nice flow. He also said that it is difficult to read. He requested me to group the papers that shared a common interest or area of research. So, I've done everything he's asked of me. But I need it to be looked at by an expert now who can put all those requirements in place to make sure that the results section reads and flow much better.

In the discussion section, there are some headings which involves small paragraphs which I try to put those similar finding together. Can those small paragraphs with those heading be reported in etter ways?

*Here is the last comment from my supervisors:*

*“ This is a lot better. I have reorganised it a bit and attempted to give it more coherence. There are a lot of track changes if you can study what I have done so you understand how I want you to write.*

1. *Try to link similar studies together. If several studies are on the same topic review the similarities and differences – synthesise the findings so that you tell the reader what the overall conclusions are across several studies.*
2. *You are still repeating information in places.*
3. *When finish this chapter, says the literature was very confused, all sorts of findings, its very diverse, lots of difference studies, there is not an overall or universal finding, it’s difficult to understand and difficult to provide overall conclusions.”*

**2. Language development in adopted children**

Fourteen of 35 papers specifically investigated language development, difficulties, and delays in adopted children using various standardised measures.

Groups 1 Adopted children’s studies

In an area of children living in poverty, one study explored language delays in 123 adopted children who attended a weekly adoption clinic (REF). The researcher assessed a dataset related to the adopted children's overall developmental, behavioural, and health problems. According to the author, a standard diagnostic score or threshold of less than 80 in any functional aspect on developmental assessments represented a potential delay. The results indicated that 61.1% of the study sample exhibited a delay in one or more developmental components. However, language development was the most frequently delayed aspect for almost 9% of the children affected, followed by cognition (48.6%), other health issues (47%), and behavioural problems (7%). Thus, the author emphasised the importance of identifying and managing the development problems of adopted children at a local level.

Another small-scale adoption children study explored the communication difficulties of nine adopted children suffering from emotional difficulties (ref). The researcher used assessments of oral direction and formulating sentences, subtests of the CELF (Semel et al., 1987). The researcher also adhered to a CELF approach, with a standard score of 11 as average and a score of 7 as approximately one standard deviation (SD) below the mean. The results indicated that n=5 fell below a scale score of 8 in both subtests. Concerning the other children, four participants earned a score of 7 on formulated sentences, one child earned a score of 13, and another scored 15 on the oral direction. The researcher also carried out informal assessments of descriptive, predictive language and narrative skills. The results indicated unidentified communication difficulties in (n= 9) adopted children. These struggles included difficulties in content, form, use, and language comprehension.

Considering language development in adopted children, Scott and Mathew (2012) conducted a large study of 4,474 children concerning a range of outcomes, including speech and language. The researchers converted standardised language scores to a common metric (M = 100, SD = 15). The analysis identified participants as having what the authors termed a 'language underachievement' if one or more of the obtained scores were in the lower quartile, compared with national norms. To diagnose a language disorder, the authors used a -1.5 SD cut-off value.

Of the entire sample, 2,054 participants met the passing criterion for the language screen, indicating no language concerns. This outcome represented 69 % of the cohort, thereby leaving 2547 children. Of this remaining group, 59.3% exhibited language underachievement, while 27.3% exhibited a language disorder. These rates are two-to-three times higher than a rate of 8.7% for normal distribution at a -1.50 SD. However, at the time of the study, language disorder was not diagnosed when exclusionary factors existed, such as environmental, economic, and cultural disadvantages, as was the case for the adopted children.

Two further studies evaluated adopted children's language via health assessments. The first study included a test of the developmental, medical, behavioural, and emotional aspects of adopted children, with a total study sample of n=313 (REF). Data analysis revealed that almost 84% of the adopted children living in adoption settings exhibited developmental and emotional problems. In particular, children's developmental problems included gross motor, fine motor, language, cognition, and self-help problems. The researchers also found that 47% had expressive and 45% had receptive language problems. This study also confirmed that language-related problems were most frequently observed in children one to six years old. Moreover, one-third of the population under the age of six had low scores on the cognitive evaluation test.

Similarly, another study examined health assessments of 322 adopted children living in adoption settings (REF). The assessments involved full physical and developmental screenings using the Australian Developmental Screening Test. The test results revealed that speech delays were present in 75% of children below five years old (n=73). Moreover, 30% of the older children showed delays in the development of language skills. According to the researchers, the prevalence of speech difficulties in the total cohort was 35%. Furthermore, 41% of the 232 children required a referral to a speech-language therapy service. The researchers also asserted that previously undetected health needs of adopted children could be identified via a comprehensive health assessment, including a language assessment.

Two studies about adopted children living in deprivations

In a set of studies concerning adopted children living in deprivations, McCleod (2007) examined the language and communication skills of 67 children, 23 of whom disabled children. Along with literacy skills, the authors assessed participants' receptive vocabulary skills, grammatical comprehension, and verbal language skills with numerous standardised tests. The British Picture Vocabulary Scale (BPVS-III; Dunn et al., 1997) was utilised for the receptive vocabulary test. The researchers found that none of the participants reached the normed age range specified on the BPVS. Furthermore, in assessing grammatical comprehension, the authors used the Test for Reception of Grammar: Version 2 (TROG-4; Bishop 2003), adhering to its expected norm scores for children ages 14 and older. The test results indicated that 56% of the sample of juvenile offenders experienced difficulties on at least one of the TOAL-4 subtests, with a large proportion (80%) struggling with the listening vocabulary subtest. Thus, the researchers observed that the overall test results indicated that many offenders in the study had language abilities below the equivalent levels for their age, with 56%–80% scoring below average on TOAL-4 subtests. Therefore, the authors concluded that the majority of participants exhibited low language abilities.

In a later study, McCleod (2015) examined language difficulties in 228 who also adopted children living in deprived household. In this study, scaled scores at -1.5 SD or more below the mean were used on the BPVS and CELF-4 subscales to indicate speech and language difficulties. The researcher found that on the four CELF-4 subtests, children scored - 1.5 SD or more below the mean on word classes, receptive (52.4%), understanding spoken paragraphs (41.8%), formulating sentences (15.0%) and word classes, expressive (31.2%). The authors observed a similar situation on the BPVS, with 55.6% of the study sample (n=52) scoring 1.5 SD or more below the mean. Therefore, the researcher concluded that approximately 49% of adopted children living in streets exhibited language difficulties.

**Interim summary**

Five studies focused on investigating language difficulties and delays in adopted children living in adoption placements, various adoption settings, and secure accommodations, determining that high rates of language difficulties and delays existed in adopted children. They also provided significant evidence that adopted children's test scores on standardised language tests were considerably lower than the normative data. The studies indicated that adopted children's language difficulties and delays were closely linked with cognitive, social-emotional, and behavioural development and academic attainment.

Same author’s work one looked at semantic

Moreover, Sally et al. (2013, 2017) examined language development in a range of studies that

used the Objective Criteria Language Test: BLOC Screening to evaluate children's language competencies. In their 2013 study, Sally et al. examined semantic difficulties in 97 adopted children. The BLOC screening results revealed that 67.1% of the participants were at a transition level with scores between the 70th and 90th percentile. However, 47.5% of participants were identified at the emergency and alarm levels, with percentile scores of their semantic skills at low and extremely low levels. The most common semantic difficulties detected included indicating the location of things, using conjunctions and prepositions, temporal and spatial words, and words indicating quantifiers.

Two looked at pragmatic

In two of these studies, Moreno-Manson et al. explored social and communicative competence and the presence of difficulties in different language domains (Sally et al., 2013) and pragmatic development in 97 neglected adopted children (Sally et al., 2017). Based on the test criteria, the results showed a prevalence of linguistic difficulties in various areas of language development. However, in both studies, pragmatic skills were the most affected, which a 2009 study supported, demonstrating that 67.8% of adopted children showed these difficulties. In Sally et al. (2009), this finding was followed by difficulties in syntax at an alarm level (the 20th to 35th percentile), with 46.5% having similar low-performance levels on morphology. The study also indicated that for semantics, 64.1% were at the transition level (the 65th to 70th percentile), with 47.5% of the children demonstrating difficulty, and with % at the 35th to 60th percentile (emergency level), showing that the children were not dominate in these abilities and % at the 20th to 35th percentile. Sally et al. (2010) also reported results based on age groups, in which all groups reported experiencing some pragmatic difficulties. When examining children ages 12 to 13 years, the study showed that most test norms were not met by 85.2%. The most commonly faced pragmatic difficulties included the poor use of interrogative words, poor inference of actions, and difficulties in responding to a lengthy question.

Other two studies about pragmatic under section

In another study, Rubine et al. (2019) examined the pragmatic language skills of 42-month-old adopted children, including the prevalence of pragmatic difficulties. The study sample was composed of 55 adopted and 65 non-adopted children, and their pragmatic skills were tested using a standardised parent questionnaire, the Language Use Inventory: French (LUI-French; Pesco & O'Neill, 2016). The test results indicated that compared to their non-neglected peers, the neglected children's performance was lower on all ten subscales of the measure. Moreover, when compared to their non-neglected peers (6.2%), the results indicated that simple (e.g. calling for help) and complicated aspects (e.g. changing conversations) of pragmatic development were subjected to pragmatic difficulties in 65.4% of the neglected adopted children (n=30).According to the researchers, these figures indicated that pragmatic difficulties in adopted children are 20 times higher than the difficulties in the general population, registering at the alarm level. Furthermore, the researchers found significant disparities in the pragmatic development of neglected (41.1%) and non-neglected (80.0%) adopted children, indicating that neglect significantly impacts adopted children's pragmatic development.

An important aspect of pragmatics is narrative skills. A recent study examined the influence of adoption settings on the narrative language skills of 93 adopted children (REF). The Test of Narrative Language was used to assess children's skills (Gillam & Pearson, 2004) in conjunction with other standard language test methods. On the narrative comprehension subtest, 55 (47.2%) participants scored at or above the expected level for their age compared to only 19 (32.3%) participants on the oral narration subtest. According to the researchers, these results confirmed the impact of adoption placements on children's narrative skills. The researchers also found that more male participants performed below the average (60%) on narrative assessments than females (44%), and only one in five children performed at or above the expected level on the oral narration task. Furthermore, 30% of the children performed below the expected level on CELF-4 test measures. The study findings confirmed that children's narrative language abilities were substantially linked to their structural language skills. Moreover, the findings explicitly demonstrated that children were more likely to score poorly on narrative abilities than other language abilities. As with Sally et al.'s studies, this study confirmed the prevalence of pragmatic difficulties in adopted children.

**Interim summary**

In the above studies, pragmatics was highlighted as a particular at-risk aspect of language development. These studies' combined results indicated that adopted children experience significant pragmatic difficulties in making inferences, analysing social situations, recalling the most important information, and holding a conversation. These findings were consistent with previous literature, which reported that children exposed to adversity usually present difficulties in one or multiple aspects of language (REFS).

Two studies looked at different areas under this section

Moreover, another study attempted to estimate the percentage of adopted children likely to develop a language impairment (LI; REF). The sample size was n=112, with an average age of 14.66 years in adopted children. None of these participants had been previously identified as having an LI. The adopted children's language skills were assessed using the CELF-4 (Semel, Wiig, & Secord, 2004). Their total test scores were then calculated and compared to their age criterion score. The results revealed that 56% of adopted children had a higher risk of LI. The researchers also compared the demographic academic achievement and functional academic skills to identify how adopted children at risk of LI and those not at risk differed on these characteristics. The researchers found small differences between adopted children with and without LI concerning demographic variables (e.g. IQ). However, on the academic achievements and functional skills tests, the researchers found that adopted children at risk of LI scored well below their peers who were not at risk across both tests.

Lastly, a study was conducted to investigate the effects of deprivation on adopted children (n=12) living in adoption settings and receiving SaLT interventions (REF). A range of non-standardised assessment activities was utilised to evaluate the cohort's language skills in this study. These activities were play-based language sampling with siblings and included using personal toys and books. Notably, 60% of adopted children displayed difficulties such as speech sound disorders and poor play abilities. However, the researchers reported that language difficulties were the primary diagnosis in 12% of the children (n=7). These findings added to the literature on the effects of deprivation on adopted children's language abilities (e.g. REF). The findings also indicated that 60% of children required continued speech and language pathology services for their language needs. Furthermore, the researchers observed positive improvements in communication skills soon after the adopted children were placed into their adoption settings.

**Overall summary of whole section**

In summary, the literature presented above shows that investigations of language difficulties faced by adopted children are quite limited. Nevertheless, the 14 research results taken into account show a high probability of language difficulties in adopted children, with higher propensities for being at risk for developmental learning delays (DLD). The research results indicate that the risk of language difficulties and problems for adopted children is between 40% and 80%. Compared to children who have a low-socioeconomic status (SES) background, these figures are high since their percentages have been estimated between 3% and 66% (REF). Additionally, the correlation present amongst adopted children's language difficulties and deprivation is confirmed. The above literature also shows a strong relationship between academic, social, and emotional academic difficulties and adopted children's language difficulties. This result is consistent with the findings of Salazer et al. (2016) and Duncan et al. (2011), who observed similar characteristics in school-aged children and adolescents with DLD. Thus, the main findings drawn from the 16 studies demonstrate that adopted children are more likely to have poor language development.

In the following subsection, the results of the research studies concerning adopted children's LI are discussed.

**3. Diagnosis of language impairments in adopted children**

The existence of diagnosed LIs in adopted children is examined in only five of 35 studies. These five studies examine different components of language.

Within the first study, the developmental, medical, and mental health data of 244 adopted children were analysed (ref). The Battelle Developmental Inventory Screening Test (4–47 months; Newborg, Stock, & Wnek, 1988) was applied to explore the children's developmental domains. The test results revealed that the percentages of children with delayed language components were concerning, along with other developmental areas. The researchers discovered that 8% of the adopted children scored four or more SDs below national standards for receptive language. Similar results were reported with expressive language scores, where 25% were four or more SDs below national standards. Comparatively, this poor performance was demonstrated by only 4%-6% of children in the general population (ref), indicating that adopted children's receptive and expressive language skills characterise them as having DLD.

Similarly, the second study explored the receptive language skills of 90 adopted children using CELF-4 standardised language tests (ref). The analysis showed that the group's mean scores on all indexes and the core language score were two-thirds to one SD less than the mean of the norming population. The analysis further indicated that although these children had receptive language mean scores between the borderline and mild range (M = 88.48, SD = 16.53), on the core language score, approximately 83% of the children were at risk of having LIs. However, considering the distribution of scores, the research sample showed greater concern about receptive language skills since 44.8% of the children scored in the severe range (i.e. M = 83.28). Furthermore, similar to the first study, the authors found that vulnerability towards impaired language skills was present in 85% of the adopted children. Thus, the study indicated that adopted children with impaired receptive and expressive language abilities might struggle to carry out basic instructions, and impairments in these components might hinder positive outcomes for this population.

The third study explored types of language and communication impairments in 50 adopted children (ref). The Children's Communication Check List-CCC2 (Bishop, 2003) was administered, consisting of 70 items. The researchers adopted its standard cut-off value, below 65, reported as the lowest-performing 15% of the population. The study results revealed that approximately 67% of participants (23 of 50 cases) presented clinically significant impairments, with the sample skewed towards males. Amongst the 23 participants, nine presented impairments were indicative of autism spectrum disorders, while four presented profiles were suggestive of Asperger's syndrome. The remaining 13 participants showed impairments in speech, language, and communication functions. Of these, seven presented severe LIs. Finally, as with other studies in the previous section the researchers reported that the most common impairments were associated with pragmatic and social communication.

Concerning social communication impairments, Sally et al. (2016) achieved results similar to the previous study. These researchers assessed social-cognitive strategies, attitudes, and communication disorders in 77 adopted children (Sally et al., 2016). The authors identified a large proportion (70.6%) of the sample (n=46) who scored between the 25th and 60th percentile, while 45.3% (n = 23) scored between the 55th and 70th percentile. These findings confirmed that over half the research sample was between the 20th and 67th percentile. Based on these test parameters, these results indicated that children's levels indicated social communication disorders. Furthermore, the researchers highlighted that these communication disorders created difficulties with problem-solving strategies where children needed to observe and examine social situations while remembering pertinent details. Regarding social-cognitive strategies and attitudes, the results also confirmed that adopted children's social communication disorders interfered with social competence.

The final study examined the impact of deprivation history and adoption placements on adopted children's (n=82) language skills and social abilities (REF). The researchers applied various subtests from the CELF-4 to calculate a core language score. Test scores of 85 or below were considered a cut-off for impairment. The analysis revealed that 41.6% of the sample was <1 SD below the normative mean and fulfilled the psychometric criterion for LI on the CELF-4 (REF, 2018). Concerning the composite of social skills, the results indicated that 59.2% of participants performed below the national mean. However, each child's scores on standardised assessments differed significantly, indicating that not every child had problems in language and social skill domains. Furthermore, the researchers found that deprivation history had no impact on individual variations in language abilities; rather, individual differences were related to the characteristics of the adoption placements.

In summary, this set of studies suggests that LI is highly prevalent among adopted children. However, caution must be taken when reporting and generalising these studies results to the whole adopted population, since there were range of methods and tests used to assessed children’s LI. Moreover, some studies completed only a fraction of the overall research on LIs. Thus, the results cannot reflect all characteristics of impairments present in adopted children.

Until now, the literature reviewed has compared children with themselves or the standardised norm. However, a few studies have compared adopted children's language with their peers, as discussed in the next subsection.

**5. Studies comparing adopted children's language development and difficulties with their non-adopted peers**

The literature review identified that seven of 35 studies compared adopted children's language development with their age-matched peers.

**First 3 studies investigated different areas, but need be linked together**

One study explored the effects of deprivation and placement experiences on language delays for 253 school-aged, adopted children (REF). The research participants had experienced deprivation and were aged-matched with children who had a similar SES background (n=73) but lived with their birth parents. To analyse the children's receptive and expressive language skills, the researcher used the Preschool Language Scale-4 standardised test. In addition, the researcher utilised other standard developmental measures, including the NEPSY: A Developmental Neuropsychological Assessment, combining the children's test scores into a total score. Compared to the age-matched non-adopted children, the adopted children's scores were substantially lower on language cognitive functioning and neuropsychological tests. Moreover, the experience of deprivation was significantly and negatively associated with various developmental domains, including memory, executive function, and language. However, the study did not find that placement type impacted adopted children's developmental trajectories.

Another study was conducted by Harriette et al. (2003), comparing the narrative coherence skills of 25 adopted children with their non-adopted children peers (n=25), using the Computerised MacArthur Story Stem Battery (Minnis et al., 2006) that consists of six story stems. The authors used the story stems to assess the children's narrative coherence skills. To form the composite scales scores, the researchers' summed the coherence scores for individual stories on continuous scales with a potential range of 1–14. This process resulted in potential coherence scores for all six scales, ranging from 1–84. The results revealed that adopted children performed poorly on all narrative coherence tests compared to their school-aged peers. Moreover, the researchers found that the factors affecting the performance of adopted children were not related to their narrative abilities; rather, they depended on the inappropriate story content used in the study, such as loss, safety, and hurt. Thus, the researchers concluded that stories involving disturbing scenarios and situational contents might have acted as triggers for specific distressing memories, consequently affecting the adopted children's narrative coherence skills.

A further study investigated the language abilities of 20 children in migrant camps (ref). The children were 30 months old, and their language skills were compared to 30 age-matched peers. Of the 50 adopted children, some had recently moved from orphanages to adoptive situations (n=15), some lived with adoptive parents for a minimum of one year (n=30), and some were raised by their biological parents (n=15). The children's language skills were assessed using various standardised and non-standardised language measures (e.g. lexical-grammatical and phonological performance measures). The results showed that statistically significant differences were present between adopted and non-adopted children on language skills. For instance, language delays were observed in children staying with adoptive parents for a short period and those living in institutions. In addition, the researchers assessed the expressive and receptive language skills of children who lived with adoptive parents for over a year. Their receptive language skills were observed to be similar to those of children living with biological parents. Therefore, the authors concluded that when children are placed in the environmentally rich context of adoptive parents, their expressive and receptive language skills move much closer to the skills of their community peers.

**Interim summary**

Although these studies compared this population's language development and difficulties with their typically developing peers, they examined different areas and provided valuable evidence that were related to adopted children's language. They found that experience of poverty and disadvantages played important roles and affected children’s test results consequently their language and cognitive skills. Thus, the studies suggested that it is highly beneficial for children to have access to environments that promote their language development. In addition one of these studies stressed the important of use of appropriate test materials when assessing adopted children’s language skills.

**Four studies investigated effects of adopted placements**

Two additional studies by the same research group explored the influence of adoption placements on adopted children's language development. Thus, the studies used data obtained from the Early Intervention Project of the adoption programme (ref 2012; ref 2015). Participants in these studies were randomly selected from two groups of adopted children, one of whom lived in institutions, and the other comprised of children who had been relocated from institutions to adoptive homes during a range of ages. The first study compared the influence of adoption placements on children's language learning (ref 2012). The age range of the adoption groups (n=184) was 17 to 48 months, divided into four age subgroups. The researchers used a range of standardised tests to analyse the children's receptive and expressive language skills. The results showed that children placed in adoptive settings at 17 months had similar expressive and receptive language test scores as typically aged peers when they were 32 to 48 months. Similarly, adoption placement from 15 to 24 months led to significant language improvement in adopted children. However, children placed at a later age had severe expressive and receptive delays, akin to those in adopted children. Language samples at 48 months confirmed that placement after 22 months led children to have lower expressive skills, as they scored 1.5 SD below the norm on language tests. Thus, the researchers indicated that children placed in adoption by 22 months showed improved language skills by 32 to 42 months. Moreover, the adopted children placed in adoption environments demonstrated a higher level of language skills than those in institutions.

The second study analysed the effects of adoption programme intervention on expressive language skills (REF 2015). The study sample (n=205) were randomly selected and divided into two groups. Children's language skills were assessed using a range of standardised language measures. The findings strengthened the role of adoption setting in development, indicating that adoption placement age had a significant positive effect on nonword repetition and word identification tests. As with previous research, children placed at an earlier age demonstrated higher scores than those placed later. Additionally, in keeping with a 2011 study, the researchers observed that the children placed in adoption by 17 months had the equivalent nonword repetition and word identification performance of children who had never been not adopted. However, children placed in adoption after 24 months showed lower language performance on these two test measures, similar to children assigned to continued living in poverty. Thus, as with the previous study, the results indicated that adopted children showed better language performance. These two studies demonstrated that the characteristics of an adoptive environment positively impacted language development. Nevertheless, the results stressed the continuing adverse effects of poor-quality living codnitions on later language development. They also emphasised the significance of the placement age in more nurturing, language-rich, and optimal environments.

Furthermore, two additional studies examined the effects of adoption placement on adopted children who were abused. One recent study explored receptive vocabulary development in two groups of children involving Child Protective Services (CPS) due to allegations of childhood abuse and neglect (REF). Following CPS involvement, 189 children were placed into adoption, while 156 remained in the unhealth conditions of their birth parents. The study samples were between 22 and 46 months old and lived in two different settings. One group lived with adopted families while the other lived with birth parents but had CPS involvement. To evaluate children's receptive vocabulary, the researchers administered the Peabody Picture Vocabulary Test, Third Edition (PPVT-III; Dunn & Dunn, 1997). To compare the age-based benchmarks, the authors converted language standard scores into a common measure (M = 100, SD = 15). The results showed that the group living within adoption had average receptive vocabulary scores at the 33rd percentile, while the children living with birth parents scored at the 10th percentile. The researchers also observed that at 46 months of age, receptive vocabulary scores of children living in adoption were higher, at almost the 45th percentile. On the other hand, the average receptive vocabulary skills for children who remained with their birth parents were at the 16th percentile. These results confirmed that adoption placements are effective for children's receptive vocabulary skills, including children with CPS experiences.

The second study was longitudinal and conducted by Warren et al. (2014). Contrary to previous studies, there was no positive correlation between placement type and language development in adopted children. Warren et al. (2014) explored this question in a large study of adopted children (n=667) with substantiated deprivation backgrounds. These researchers focused on adopted children who remained living with relatives and non-adoptive parents. The data came from waves 1, 3, 4, and 5 of the National Survey of Child and Adolescent Well-Being in the United States. To test the adopted children's language skills, the researchers applied the Preschool Language Scale-3 (PLS-4), comprised of three standard scores (population M= 100, SD= 15): expressive communication, auditory comprehension, and total language scores. The study sample was tracked longitudinally, and data collection was conducted at each wave (wave 1 at 2 to 8 months; wave 2 at 12 months after baseline; waves 3, 4, and 5 at 20, 38, and 62 months, respectively). The researchers observed the adopted children's expressive communication and auditory comprehension skills (e.g. responding to sounds and names, following increasingly complex directions) decreased largely from wave 1 to wave 3 and remained low at wave 4, then increased to baselines at wave 5. The results demonstrated that children's expressive language and auditory comprehension scores in placement types were below the national average (population mean of 100) at each wave. According to the authors, the average language scores within each placement group remained lower than the population mean at each wave.

**Summary**

Overall, these nine studies showed that the risks of developing language difficulties and delays for adopted children were significantly higher when compared to their non-adopted peers. Furthermore, these studies reported that language development in adopted children improved when placed in encouraging and language-rich adoption environments early in life, applicable to all children. This finding was also previously discussed in Chapter 3: For all children, growing up in a language-rich environment is a significant indicator of effective language development (refs).

However, one study found no effect of adoption placement types on the language skills of adopted children. Additionally, the findings of the studies demonstrated that placement types and deprivation substantially impact the language development of adopted children. Thus, in the last section of this review, the findings are discussed from research that examined language development interventions in adopted children.

**6. intervention strategies and language assessment tools relevant to adopted children's language**

This section provides an overview of a few studies (n=8) that focused on the types of intervention strategies used to enhance adopted children's language skills and language assessment tools relevant to identifying adopted children's language problems.

These five different studies looked at intervention areas and they need to be linked

Two studies explored the effect of the Attachment and Bio-behavioural Catch-up for Toddlers (ABC-T) parenting intervention on adopted children's language skills. In the first study, an evaluation was conducted to understand whether the ABC-T intervention during infancy would enhance the receptive language skills of pre-schoolers (REF). Participants were 66 children divided into a control intervention (n= 33) and an ABC intervention group (n=33). The interventions were then provided by the researchers accordingly.

The control group received a development-focused programme, administered to families for the same frequency and duration as the ABC intervention. Of the total sample, six children received both the ABC and control interventions. The children's receptive language skills were assessed using the PPVT-III (Dunn & Dunn, 1997). In addition, their standardised test scores were analysed applying the test's age-based benchmarks (M = 100, SD = 15). Compared to the control children, the ABC children's standard scores on the PPVT were higher. Furthermore, the research findings revealed that compared to the age-based standard, participants in the ABC group scored at the 55th percentile on the PPVT, while participants in the control group scored at the 34th percentile. Thus, the authors concluded that infants who received the ABC intervention (n=33) scored significantly higher on a receptive vocabulary test at 38 months than the infants who received a control intervention (n=33). Consequently, the researchers stressed the positive impact of ABC-T intervention on parental responsiveness, which helps maximise language development in infants who face disruptions in life.

Similarly, in the second study, the ABC-T intervention was employed to assess whether the intervention enhanced the adopted children's receptive vocabulary (n=123; REF). The researchers randomly selected a study sample of adopted parents, dividing them into two groups who received either the ABC-T or a control intervention (DEF). When the children were between 38 and 62 months old, the researchers utilised the PPVT-III to test their receptive vocabulary skills. The post-intervention assessments were completed approximately one month after finishing the intervention, continuing annually until participants reached 62 months. The results revealed that compared to the control group, the average receptive vocabulary scores of adopted children provided the ABC-T intervention were at the same level as the nationally recognised norm. Moreover, children who experienced more sensitive caregiving from their adopted parents exhibited greater receptive vocabulary skills than children who experienced less sensitive caregiving. Thus, the researchers emphasised the positive impact of the ABC-T on the receptive vocabulary skills of adopted children.

The next study used the Development Inventory as an intervention to improve the language and cognitive development of 85 infants and young children living in institutions (REF). Study participants were divided into two groups: the intervention group (n=36) and the control group (n=46). The interventions involved children's songs, storytime, and educational-toy play. If the child's performance was between the average and 25% below the age norm, the child scored 3, those between 25% and 35% below the age norm scored 4, and those 35% below the normative age indicated a more severe developmental delay. This study was comprised of two sub-studies. In the first sub-study, the researchers found that both groups' pre-test and post-test scores showed no significant differences. However, the second sub-study found that infants and young children in the intervention group displayed delayed language and cognitive developments. The researchers also observed that the developmental differences between the control group and the intervention group widened. The authors attributed these results to the fact that the children in the control group spent time with volunteer families over the weekends and holidays, possibly enhancing their language development.

As with their previous studies examining DLD in adopted children, Sally et al. (2008) examined the development of pragmatic-communicative intervention strategies to improve the functional skills of 23 adopted children who were abused. Similar to their previous studies, the researchers used a BLOC screening test (Puyuelo, Renom, Solanas, & Wiig, 2003) during pre-and post-intervention stages. The result of the pre-test stage indicated that the proportion of children below the 65th percentile was 85.2%, while 33.8% of the children were at the alarm level, 71.4% were at the emergency level (35th to 66th percentile), and 5.8% were at the transition level (60th to 70th percentile). These results revealed that none of the children could reach the upper threshold of the pragmatic variable test score (M = 37.1, SD = 31.8). Nevertheless, the researchers discovered that children's pragmatic skills improved significantly after the intervention (post-test) in all fields (M = 66.3, SD =32.8), including empathy during communication, difficulty forming inferences, and limited language usage. Therefore, the authors concluded that pragmatic intervention strategies are effective for adopted children.

Only one study (ref) examined adopted children's language screening and early identification tools, a pilot study that culminated in a language evaluation tool called 'Talk Tool'. The study's main goal was to determine whether the new evaluation tool could help clinicians from various fields detect speech and language needs in maltreated children between five year and nine years, ten months. The tool was employed with other standardised language tests to determine whether it could accurately identify speech and language concerns in the adopted children's group (n=85). The screening tool results indicated that 85% of the children had two or more domains of concern (e.g. hearing, speech, and language problems). Most concerns were relevant to speech, expressive language, fluency, and non-verbal communication. According to the researchers, the tool could be successfully implemented by non-SaLTs to identify speech, language, and hearing problems. However, the tool had limitations regarding predictive values. Therefore, the researchers suggested not employing it as a stand-alone language screening method.

Lastly, Van (2015) conducted a systematic review on SaLT interventions and adopted children's development of language skills. The review investigated 65 studies that met the inclusion criteria, although none focused on SaLT interventions specific to children in adoption settings. The researchers concluded that SaLT clinical research was incomplete concerning adopted children, lacking information on providing successful, efficient interventions sensitive to this cohort's complex needs. This situation created an ongoing disadvantage for these children. Thus, effective SaLT support and intervention systems could enhance adopted children's language abilities.

**Summary the section**

Overall, the studies analysed in this subsection offered significant insight into intervention strategies that positively influence adopted children's expressive and receptive skills and wider cognitive abilities. However, these studies highlighted that SaLT interventions and screening tools were quite scarce. Furthermore, interventions specific to adopted children should be developed to provide optimal language development support for adopted children, especially those with child welfare history. Thus, the following section provides a summary of the 35 studies examined here.

Overall, although the inclusion criteria in this SR covered broad research areas, limited evidence exists regarding the subject areas mentioned. In addition, the results of this SR identified a significant disparity amongst the included research studies. However, despite differences, these studies yielded valuable information about LIs, difficulties, and delays in adopted children. A discussion of these study findings appears in the following section.

**4.4. Discussion**

To the best of the researcher’s knowledge, this SR represents the first comprehensive overview of language development in this population.

This SR provided a detailed overview of the published literature on language development in adopted children. The SR’s objectives were to explore the existing literature, reporting of difficulties and delays, examining LI incidence rates based on the standardised assessments and intervention strategies and assessment tools relevant to adopted children’s language development. In this final section, research is synthesised based on emerging patterns, further divided into subsections to best present the main findings of the reviewed studies.

**4.4.1. Findings from the existing literature**

The areas explored in this SR were considerably wide, which highlighted that there are significant research gaps within this field of study. Several strategies were applied to extract relevant studies from six different databases including grey literature sources. Nevertheless, only 32 research studies were identified even after such a thorough assessment. These publications are spread over thirty years (though most date from the last decade).

The findings of these included studies are now discussed via five emerging themes, namely: (i) language difficulties reported in this population and the proportion of adopted children with language difficulties; (ii) representatives of adopted children population who have language assessments; (iii) factors affecting adopted children’s language difficulties; (iii) comparison of language development between adopted children and non- adopted children population; (iv) the association between language difficulties and cognitive, educational, emotional, and social outcomes; and (iv) the paucity of interventions and assessment tools relevant to adopted children’s language.

**4.4.1.1. Language difficulties reported in this population and Proportion of adopted children with language problems**

The findings of this SR provided new insights into areas of language difficulties in adopted children and the results of the SR highlighted that there is a scarcity of research interest to this field of study. As, there was only a small body of studies considered investigating language difficulty in this population. The areas were covered in these studies were also limited with semantics, expressive and receptive skills and pragmatic aspects of language and indicated that all these areas are affected.

Specifically, the studies of pragmatic skills provided considerable evidence of difficulties, including difficulties with narrative skills. For example, the pragmatic skills of adopted children fall between the ‘emergency’ and ‘alarming’ levels on the “objective language criteria test” on the Revised BLOC-Screening scale (Moreno-Manson et al., 2010). Notably, the percentage of pragmatic difficulties, in these studies found to be higher than those previously observed. Thus, adopted children are reported to be 15 times more likely to experience pragmatic difficulties than their non- adopted children peers (Di Sante et al., 2019). Pragmatic is important, for example, when using language to seek attention, make requests, answer questions, monitor when the answers are too extensive and communicating preferences (Matthew et al., 2018; Longobardi, Lonigro and Laghi, 2017). The results of this SR indicated that adopted children exhibited difficulties with such aspects of pragmatic. In wider context pragmatic difficulties lead to problems in empathising with others, making social inferences about acts and intents, using of interrogative pronouns, and developing conversational skills (Coster et al., 1989; Sylvestre et al., 2016). However, it was not just pragmatics that were highlighted in studies. Similarly, adopted children’s semantic skills have also been reported to be at between the ‘emergency’ and ‘alarm’ levels (Moreno-Manson et al., 2015). Taken together, these results support the negative consequences of being in adoption on the development of adopted children’s pragmatic and semantic skills.

Concerning the proportion of adopted children with language difficulties, this SR uncovered 17 out of 32 research studies that reported ‘difficulties’ in language development based on standardised language tests. While the other studies also used normed measures however, they investigated other aspects of language in adopted children. These 14 studies report in their samples of adopted children a proportion of between 30% and 90% at risk of having language difficulties. However, care is required in interpreting these findings. For example, some studies had limitations related to study design, sample size, and test materials; therefore, not all can be considered to have robust results. Nevertheless, despite these limitations, the findings from these small number of studies reviewed in this SR suggested that there are significantly higher levels of language difficulty among adopted children compared with non- adopted children populations.

Relative to research involving language impairment/DLD in adopted children, this SR revealed only 5 research studies from 32 papers that used standardised tests to diagnose language ‘impairments’ within adopted children. The findings from these 5 studies indicate the average prevalence rates to be 75% which is extremlly high compared with the general population at 7% in typical non- adopted children school-aged population (Tomblin et al., 1997). However, since there are only 5 studies have investigated this phenomenon, generalisation to the entire population of adopted children is difficult as these small scales of studies which may not accurately represent LI in adopted children. Therefore, caution must be taken when presenting these findings, and the prevalence rates of 75% should be only considered within these study contexts.

**4.4.1.3 Comparison of language development between adopted children and non- adopted children population**

The review of research which compares adopted children with non- adopted children provided a mixed picture. For instance, compared to their TD peers who are from low-SES backgrounds, school-aged foster children exhibited delays in several developmental domains, and presenting poor narrative coherence skills. These results were consistent with the literature reporting the effects of being in adopted were reported (Arora, Kaltner and Williams, 2014; Hodges et al., 2016; Sylvestre and Mérette, 2010). Furthermore, some studies compared the language skills of adopted children who resided in chaotic households with their chronological-age-matched TD children. The findings of these studies indicated that young children who are raised in a severely deprived settings exhibited substantially lower language skills than their chronological-age-matched and adopted peers. However, amongst all groups, language skills of adopted children from institutions and adopted children had lower language skills than the TD groups.

These results were along the same lines as the research of other populations such as children from low SES groups (Hoff, 2006). Moreover, a number of studies compared adopted children’s language abilities with other adopted groups abilities who lived in different households. The results indicated that adopted children children’s language is move developed than in other groups. A similar result was identified with severely neglected children who obtained lower scores on all language tests (Fox, Long and Langlos, 1998; Beeghly and Cicchetti, 1996; Fox et al., 2011).

**4.4.1.3. Factors which affect adopted children’s language development**

As reviewed in Chapters 2 and 3, there are many risks and protective factors that contribute to language development in all children as well as adopted children. This SR builds on the work and highlights factors affecting adopted children’s language development involving age of placements, placement types, educational level of adopted children and adversities life experiences.

**4.4.1.3.3 Age of placement**

Concerning age of placements, a small scale of studies reviewed in this SR indicated that early placement of adopted children into stable family homes before the age of two years positively affects language skills compared to placement at a later age. Indeed, two of the studies included in the SR reported that children placed with adoption at a later age had severe interruptions in the expressive and receptive language skills, which were identical to those of children who remained living in poverty (Windsor et al., 2011; Windsor et al., 2013). However, these results should be cautiously considered since the outcomes were not only dependent on the age of children at the time of placement, but they were also dependent on the types and nature of the adoption settings (Mc Grath-Lone et al., 2016; Jones et al., 2011; Meltzer et al., 2002; Martin et al., 2004; Leslie et al., 2005).

**Accommodation types**

With regards to placement types, a few of the included studies investigated how different accommodation or adoption placements impact on adopted children’s language development. These studies find that type of accommodation types and placing adopted children into adequate home settings at an earlier time point has a positive impact on language skills (Windsor et al., 2011; Windsor et al., 2013; Raby et al., 2018; Zajac, Raby and Dozier, 2019). One study found no positive association between adoption and children’s language skills (Stacks et al., 2011). However, results should be cautious as many studies are within-subject designs. It is difficult to develop large experimental and control groups in adopted children as they are usually not easily reached because of their individual life circumstances (Alderson et al., 2019; Carey, 2010; UNCR, 1989; Golding, 2010; Pinto and Woolgar, 2015). Thus, further between-subject studies are needed to make comparisons between adopted children and non- adopted children’s groups in this respect.

**4.4.1.3.1 Education level of adopted families**

Further, the literature reviewed in this SR reported that accommodation with adopted parents with higher educational levels could help children better develop their language skills than children residing in other accommodation such as poverty (Zajac, Raby and Dozier, 2019). This finding was consistent with the positive association between high parental SES and language skills of children in the general population (e.g., Hoff, 2006; Hart and Risley, 1995). However, it is worth noting that such findings may not apply to all adopted since, it impossible to place all children with highly adopted parents.

**4.4.1.3.4 Effect of adversities on children’s language**

**A** side from the positive factors, this SR also reported that there are some risk factors that might affect adopted children’s language development. The reviewed literature highlighted that maltreated child were quite vulnerable to communication difficulties, and this had a significant impact on their overall development (e.g., Snow et al., 2019; Stack et al., 2011). Another important risk factor was where children lived-in poor-quality household which was found to affect children’s language developments (Windsor, Glaze and Koga, 2007; Berument and Eyupoglu, 2011). These finding was evident in most studies where adopted children continually gained lower scores on standard language tests were below the population’s mean. These findings were consistent with some empirical research that focused on the influence of maltreatment on multiple aspects of language development (West, 2007; Coster et al., 1989: Culp et al., 1991; Snow et el., 2009). Given the likelihood of such risk factors, these results suggested that much attention is required for adopted children’s language development to address their poor language abilities.

In summary, this SR indicated that there are factors that affecting adopted children’s language development, positively and negatively. However, the effects of risk factors seemed to be higher than protective ones. These effects appeared to significantly influence adopted children’s health and well-being, cognition, and physical growth, detrimentally impacting their structural and pragmatic language skills (Kaltner and Rissel, 2011; Westby, 2019; Lind et al., 217; Wretham and Woolgar, 2017; Zimmer and Ponko, 2006). (Kaltner and Rissel, 2011; Westby, 2019; Lind et al., 217; Wretham and Woolgar, 2017; Zimmer and Ponko, 2006

**4.4.1.4. Link between language difficulties and cognitive, educational, emotional, and social outcomes**

Many studies indicated that language difficulties and impairment in adopted children were closely linked to their future cognitive, emotional, and social outcomes. These, studies reported that in adopted children emotions and behavioural disorders were the most common once (e.g., Evans, Scott and Schulz, 2004: Cross, 1998; Pears and Fishers, 2005), and with approximately 52% of the population reported to presenting cognitive difficulties with attention and memory (Halfon, Mendonca and Berkowitz, 1995; Pears and Fishers). These study results revealed that adopted children with language difficulties were at risk of receiving lower educational and academic outcomes than children’s who were not at risk (e.g.,Hagaman et al, 2010; Cross, 1998). These findings were consistent with the literature suggesting that children who with DLD from infancy to younger ages experience increased social, emotional and behavioural difficulties (Levickis et al., 2017; Curtis et al., 2018; Durking et al., 2009), academic challenges (Janus et al., 2017) and impaired cognitive abilities such as executive functioning Smolak, McGregor, Arbisi-Kelm and Eden, 2020)

**4.4.1.5. Paucity of SaLT screening tools and interventions methods relevant to adopted children’s language**

**Assessment**

This SR clearly highlighted the need for effective language assessment tools and intervention systems for identifying and supporting the language needs of adopted children. In several studies’ health screenings were used when evaluating adopted children’s language skills. These study results confirmed that the health screening process could be used to detect adopted children’s language needs. (e.g., Halfon, Mendonca and Berkowitz, 1995; Evans, Scott and Schulz, 2004; Nathanson and Tzioumi, 2007). The 'Small Talk’ language screening tool represents a recent specific tool to identify language difficulties in adopted children (Frederico et al., 2018). However, despite this new tool, the SR highlighted the need for more language assessments tools that could be used at the time of adoption, or within 60 days of adoption, to facilitate prompt detection of adopted children’s language needs.

**Intervention**

In terms of an intervention the studies that used the ABC-T and pragmatic-communicative interventions had positive results for receptive and expressive language and pragmatics (Bernard, Lee and Dozier, 2017; Raby et al., 2018; Moreno-Manso et al., 2012). Notably, ABC interventions targeted at foster families during infancy proved to be effective. Thus, as with the general population, interventions aimed at parental responsiveness are essential to maximizing language development in adopted children. When it comes to providing speech and language therapy to assist in children’s SLCN, it is somewhat a *“postcode lottery”* (Children’s Commissioner UK, 2019, p.7). Therefore, it is likely that some children are falling through the gaps between different SaLT providers in their area (Children’s Commissioner UK, 2019). Thus, this could be particularly problematic for LAC (RCSLT Factsheet, 2018; Cross).

Consequently, accounting for adopted children’s unique circumstances and vulnerabilities, developing specific language intervention methods would benefit this cohort. These interventions should be flexible and effective, encouraging a considerable progress in communication, social, emotional, overall well-being and educational development of adopted children (Moreno Manson, 2012). Furthermore, the establishment of training and mentoring schemes that raise awareness of adopted children’s needs for SaLT interventions would benefit this cohort, in both the short and long term (Byrne, Lyddiard and Furniss, 2018). Therefore, using language assessment tools regularly to detect language needs, combined with formal language assessments and intervention methods, would help adopted children to improve their language development.

**4.5. Strengths of the SR**

This SR is shedding more light on language development among adopted children. Consequently, it has provided a foundation for future research in this field. Further, this SR provides valuable knowledge on risk and protective factors that influence adopted children 's language development. This provides insight in developing appropriate language assessment tools and interventions.

**4.6. Limitations of the SR**

One limitation of the SR is it only included studies that were written or published in English. A second limitation was the variety of terms used to define adopted children, which had implications for the identification search terms. As a result, there was a possibility of missed relevant keywords, search terms and consequently the relevant studies. Another limitation was inadequate information in studies pertaining to language in adopted children. Only 5 studies focused on language impairments in adopted children making it difficult to generalize findings across all adopted children. A fourth limitation was, significant variation is seen in the results and characteristics of the studies reviewed (e.g., study populations, areas of research interest, methods, purpose). Thus, the heterogeneity of study methods made it difficult to conclude with generalised findings and to appraise the quality of the included studies appropriately. A final limitation was associated with the current SR being the first SR that systematically set out to synthesise and categorise existing evidence on language development in adopted children, which made it difficult for the reviewer to compare the results of the current SR against previous SRs. Therefore, this SR has demonstrated the need for more research into the early identification of language difficulties, impairment and or delays in adopted children.

In sum, this chapter discussed diverse and complex study outcomes, which made it difficult to reach a conclusion about language difficulties, consequently DLD levels in the population of adopted children. Therefore, the next chapter determines how many children in a sample of adopted children have been diagnosed with language difficulties and or impairments. Suitable methodological sources and designs are adopted for this purpose and discussed in the next chapter.