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E Tipu e Rea

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Brief Evidence Reviews for the Well Child Tamariki Ora Programme

Report submitted to MoH on 11 December 2019

Whakapūpūtia mai ō mānuka,
kia kore ai e whati

Cluster the branches of the manuka,
so they will not break

Foreword

The Ministry of Health is responsible for the development of policy advice on children's health and the future direction of the Well Child Tamariki Ora (WCTO) programme. The WCTO programme is the universal health service in New Zealand, which is responsible for protecting and improving the health and wellbeing of children from birth to 5 years of age. This is achieved through health and development screening and surveillance, whānau care and support, and health education.

The current programme is based on the evidence available at the time of the last programme update in 2007. Therefore, the Ministry of Health is reviewing the current WCTO Framework and associated Schedule (developed in 2002) to ensure that WCTO services meet the current needs of children and their whānau, and address the issues they face. The present review was initiated in 2019 and is the second review of the programme, as the first was carried out in 2006. In preparation for this review, the Ministry of Health has commissioned an evaluation of the recent literature on some of the new and emerging issues for preschool children, as well as possible ways to address them.

The purpose of this review includes ensuring that the programme is underpinned by the latest research and evidence. This is particularly pertinent to the current Schedule of Universal Contacts delivered, and one of the work-streams of the review is to consider the timing, content, and intensity of the Schedule, and associated additional contacts. This work stream will support the development of an integrated framework of universal wellbeing contacts for the pregnancy to 24 years of age life course.

The Ministry of Health require the brief evidence reviews (BERs) to synthesise relevant evidence about what works in key areas for children, including development, vision, hearing, emotional and mental health, and growth. The BERs adopted the He Awa Whiria – Braided Rivers approach and include consideration of what will work for Māori tamariki and whānau, and Pacific children and families within each domain. The BERs have helped to identify any knowledge gaps where further work and research may be needed, to inform further development of the WCTO programme.

The WCTO review is a key health contribution to the Government's Child and Youth Well-being Strategy. It forms part of the Ministry of Health's work programme to transform its approach to supporting maternal, child, and youth well-being.

The Ministry of Health have commissioned A Better Start: E Tipu E Rea National Science Challenge to undertake 11 health related BERs that will inform the WCTO review and decision making on the future core service schedule, and additional health and social services for children in New Zealand. The aim of the BERs is to ensure that decisions are grounded in, and informed by, up-to-date evidence. BERs are intended to synthesise available evidence and meet time constraints of health care decision makers. Internationally health technology agencies have embraced rapid reviews, with most agencies internationally offering these alongside standard reviews. These 11 BERs that we have conducted have been performed in a very short time which was a very challenging task.

A Better Start is a national research programme funded by the Ministry of Business Innovation and Employment (MBIE). The objective of A Better Start is to improve the potential for all young New Zealanders to lead a healthy and successful life. To achieve this, A Better Start is researching methods and tools to predict, prevent, and intervene so children have a healthy weight, are successful learners, and are emotionally and socially well-adjusted. A Better Start consists of more than 120 researchers across 8 institutions.

The BERs cover 11 domains critical to the WCTO programme, which are: neurodevelopment (#1); parent-child relationships (#2); social, emotional, and behavioural screening (#3); parental mental health problems during pregnancy and the postnatal period (#4); parental alcohol and drug use (#5); excessive weight gain and poor growth (#6); vision (#7); oral health (#8); adverse childhood experiences (#9); hearing (#10); and family violence (#11). The BERs have synthesised relevant evidence about what works in key areas for children across these domains, which were assessed with careful consideration of what will work for Māori tamariki and whānau and Pacific children and families. They have also identified knowledge gaps where further work and research may be needed to inform further development of the WCTO programme.

Within each domain, a series of 6–14 specific questions were drafted by the Ministry of Health, and subsequently refined with input from the large team of researchers assembled by A Better Start. A Better Start established discrete writing teams to undertake each BER. These teams largely consisted of a post-doctoral research fellow and specialty expert, often in consultation with other experts in the field. Subsequently, each BER was peer reviewed by at least two independent experts in the field, as well as two Māori and a Pacific senior researcher. In addition, senior clinical staff from the Ministry of Health have reviewed each BER. These were then revised to address all the feedback received, checked by the editors, and finalised for inclusion in this report.

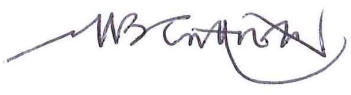
Whilst each of these domains are reviewed as discrete entities, there is considerably inter-relatedness between them. In particular, neurodevelopmental problems can be impacted by parent-child relationships, parental mental health, and pre- and postnatal drug exposure. Similarly, children who have problems with growth, vision, or oral health may also have neurodevelopmental disorders.

Most of the evidence available for these BERs comes from international studies with limited data from New Zealand, in particular there is limited information about Māori, Pacific, and disadvantaged families. These are the tamariki and whānau in whom the WCTO Programme services are more scarce, yet could potentially offer the greatest benefit.

The criteria for screening include the requirement for an effective and accessible intervention; the corollary is that screening should not be offered if there is no benefit to the individual being screened. The essential issue is therefore to identify those infants and preschool children and their whānau who would have better outcomes following intervention; this includes better outcomes for the whānau.

The current WCTO programme has had a greater emphasis on surveillance rather than screening. Many of the questions in the BERs address screening. A change in the WCTO programme that further extends into screening will require substantial upskilling of many WCTO providers, as well as redirection of resources. Importantly, Māori and Pacific iwi and community views must be considered before any new screening programmes are to be included.

It should be noted that a shift towards screening rather than surveillance may prevent health and behavioural problems. The economic benefits of prevention and early intervention are well documented, with early interventions showing that for every dollar spent there are substantial savings to health, social services, police, and special education resources.



Professor Wayne Cutfield
Director of A Better Start National Science Challenge
On behalf of the editors, authors and reviewers of the brief evidence reviews

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3 Social, emotional, and behavioural mental health screening – including adverse childhood experiences

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Disclaimer

This brief evidence review was commissioned by A Better Start National Science Challenge (the Challenge) on behalf of the New Zealand Ministry of Health. It was prepared over a relatively short time based on the evidence available to the authors at the time of its preparation. The authors have made considerable efforts to perform a comprehensive and balanced evaluation of the existing evidence. However, this brief evidence review cannot be considered an exhaustive analysis of the existing peer-reviewed and grey literature on the topic, and it may not reflect the potentially conflicting views of all experts in the field. There could have been important omissions, and additional evidence might have also come to light since completion of this final draft. Thus, this brief evidence review should be considered with the appropriate caution. A previous version of this document was peer-reviewed by Māori and Pacific researchers and by independent experts in the field. Peer reviewers were anonymous, unless they have otherwise been identified by name. Please note that this brief evidence review does not represent the views of the Challenge or the Ministry of Health; rather, it reports the independent conclusions of the listed authors.

Conflicts of interest: L M Thorn reports no conflicts of interest. D Guy coordinates Training in Watch, Wait and Wonder in Australasia; she is also currently President of Infant Mental Health Association Aotearoa New Zealand (IMHAANZ), and the organisation providing training to implement Facilitating Attuned Interaction (FAN) in New Zealand.

Abbreviations

ACEs	Adverse Childhood Experiences
ACE-Q	Adverse Childhood Experiences Questionnaire
ASQ-SE	Ages and Stages Questionnaire – Social Emotional
BITSEA	Brief Infant Toddler Social Emotional Assessment
CBCL	Child Behaviour Checklist
CYW	Child Youth and Wellness Centre
EIF	Early Intervention Foundation
FAN	Facilitating Attuned Interaction
IECMH	Infant and Early Childhood Mental Health
IY	Incredible Years programme
NGO	Non-government organisation
NZ	New Zealand
PCIT	Parent Child Interaction Therapy
SEB	Social, Emotional, Behavioural
SDQ	Strengths and Difficulties Questionnaire
US	United States of America

Summary

Infancy and early childhood are unique developmentally, and studies demonstrate significant social, emotional, and behavioural problems (SEB)[1,2], and adverse childhood experiences (ACEs)[3]. While there are no comprehensive studies estimating prevalence of ACEs in New Zealand (NZ), approximately 10-15% of 1-2-year-old children[2,4], and 10% of 3-4 year children have SEB problems[5], which includes a disproportionate number Māori and Pacific children[4,5]. Without intervention SEB problems can persist[4], and ACEs can accumulate, causing long term problems including mental and physical illness[3,6,7].

This report provides a review of the latest research and evidence for screening of SEB problems and ACEs to inform decision making for health and social services. The strengths and difficulties questionnaire (SDQ) is currently used for universal screening of SEB difficulties among 4 year old children in NZ[8]. There is no ACE screening tool in use in NZ, however there is an acceptable ACE questionnaire (ACE-Q) in use in the United States, which records the number of childhood adversities[7].

Ideally, children above the threshold for concerning SEB scores or number of ACEs are referred for further assessment and intervention, such as a non-government organisation (NGO) programme or an infant and early childhood mental health (IECMH) service. Available interventions effectively improve parenting and the parent-child relationship, and reduce SEB problems[9-11]. However, there is a severe lack of IECMH services in NZ.

NZ needs regular screening of SEB difficulties starting as early as possible, and to establish screening for ACEs, in line with Well Child Tamariki Ora checks. There needs to be more IECMH services and NGO programmes available with up-to-date training of staff, and a referral pathway tailored to the interventions available in each area to ensure all children receive appropriate interventions before developing significant difficulties and disorders.

Literature search

Electronic databases searched in order to identify relevant studies included: PubMed, Scopus, Cochrane Database of Systematic Reviews, and Google Scholar. Searches were conducted using key words or free text words depending on the database. Each search was limited to studies published between 1990 and 2019, and in the English language. In addition to databases, reference lists of relevant articles were manually searched. Furthermore, experts in the field were consulted, and government and other organisation websites were searched for relevant journal articles and grey literature. Additional information is found in Appendix 1.

3.1 What is the prevalence of social, emotional and behavioural problems in infants and children (0-5 years) in New Zealand?

An estimate of New Zealand (NZ) prevalence is derived from the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997); a tool used to identify social, emotional, and behavioural (SEB) problems among children aged 3-16 years[1,12]. The SDQ has five subscales: emotional symptoms, peer interactions, hyperactivity, conduct, and prosocial behaviour[12,13]. Children are categorised as either unlikely to have difficulties (normal), medium likelihood of difficulties (borderline), or high likelihood of difficulties (concerning/abnormal)[12].

Pooled data from the 2012/13, 2014/15, and 2015/16 New Zealand Health Survey, showed that 10.2% of children aged 3-4 years had a concerning total SDQ score (score of >15/40), which was higher than children aged 5-9 years (6.9%) or 10-14 years (8.4%) (score of >16/40)[5,13]. The proportion is similar to a finding from the D'Souza et al. (2019) study, which used a cohort of 5896 children from the Growing Up in New Zealand study and found that 11.3% of the children at 4 year olds had a concerning total SDQ score[4].

There is limited research in NZ around SEB problems among children aged 2 years, and no research for children under 2 years. D'Souza et al. (2017) studied the use of the SDQ among 2 year olds in NZ and found satisfactory factor structure and reliability, supporting its use for screening, however an evaluation of validity is required[14]. D'Souza et al. (2019) found that 9.5% of children aged two years had a concerning total difficulties score (score of >15/40)[4,13]. This finding is similar to studies in other countries, which have found that around 6-18% of 1-2 year old children experience SEB difficulties[2,15,16].

3.1 Summary

- ***The SDQ is a tool used to identify SEB problems among children aged 3-16 years, and provides an estimate of prevalence data in NZ.***
- ***10-11% of 3-4 year old children have a concerning total SDQ score, which is higher than among older age groups.***
- ***There is limited research on SEB problems among children aged 2 years and under.***
- ***D'Souza et al. used the SDQ among 2 year olds and found that 9.5% of children aged 2 years had SEB problems.***

3.2 What are the long term outcomes following identification of a social, emotional and/or behavioural problems during childhood, with and without therapeutic intervention?

3.2.1 Without intervention

If untreated, SEB difficulties in early childhood may have short and long-term effects on an individual's emotional, cognitive, social and physical health, behaviour, parent-child relationship, and education[6,17-20]. These poor outcomes effect the individual, their family, and society. Without intervention, approximately 35-50% of children with social, emotional and behavioural problems continue to have persisting difficulties throughout early childhood[4,21,22].

Outcomes differ depending on the problem and its severity, the parent-child relationship, associated adversities for parents and children, and environmental factors. For example, regulatory problems in the first year, with excessive crying as a symptom, are associated with developing behavioural problems[6].

3.2.2 With intervention

Studies have shown post-intervention improvements in infant and early childhood SEB difficulties and maintenance of the improvements[23-27]. For example, children at risk of developing conduct disorders, show significant improved behaviour after parenting-based programmes, and maintain the improvements 18 months after the intervention[23]. Currently, there are few studies that investigate outcomes past a couple of years. Interventions during the first months and years of life have also been shown to be effective[28,29].

3.2 Summary

- ***35-50% of children who have recognised SEB problems persist with these problems throughout childhood.***
- ***Without intervention, SEB problems cause a wide range of poor effects on health and wellbeing in the short and long term.***
- ***Interventions, such as parenting programmes, improve SEB difficulties in infancy and early childhood, and children maintain these improvements.***

3.3 What are the long-term impacts of Adverse Childhood Experiences with and without intervention?

3.3.1 Without intervention

Adverse childhood experiences (ACEs) are stressful or traumatic experiences that occur during early childhood or adolescence[3]. When children experience strong and frequent adversity without adult support, the normal function of the brain and other organs can be disrupted, leading to toxic stress[30,31]. Felitti et al. (1998) developed a questionnaire with ten ACEs grouped into categories including abuse: physical, emotional, and sexual; neglect: physical and emotional; and household dysfunction: substance abuse by parent/partner, mental illness of parent/partner, intimate violence of parent/partner, incarceration of parent/partner, and separation/divorce or parent[3]. Researchers since have used the retrospective ACE questionnaire developed by Felitti for adults, or a modified questionnaire, for prospective studies and screening.

Early life adversity is associated with poor health outcomes in the short and long term, including mental health problems, violence, substance abuse, and poor physical health[3,32-40]. ACEs accumulate throughout childhood, and have a dose-response relationship, with more ACEs increasing the risk of poor outcomes[3,7]. Children exposed to four or more ACES, irrespective of which ACES, have an increased risk of poor health outcomes[39].

3.3.2 With intervention

Reducing initial exposure to ACEs has cognitive benefits for children[41], however, there is little research on the effects of intervention after exposure to ACEs during early childhood. Researchers have identified factors that are associated with resilience to adversities[42,43]. For example, the effects of toxic stress on young children can be reduced by improving the parent-child relationship[44], therefore interventions improving this relationship may help prevent the poor outcomes. ACEs are risk factors for SEB problems[34,39], therefore interventions for SEB problems may also reduce poor outcomes associated with ACEs.

3.3 Summary

- ***ACEs accumulate throughout childhood and are associated with poor mental and physical health outcomes in the short and long term.***
- ***ACEs have a dose-response relationship with more ACEs increasing the risk of poor outcomes.***
- ***Improving the parent-child relationship can reduce toxic stress, therefore interventions directed to improving the relationship could be used for children with ACEs.***

3.4 What suitable screening tests are available to conduct social, emotional, and behavioural screening, including Adverse Childhood Experiences (ACEs), during infancy and early childhood?

An acceptable screening tool needs to have internal consistency, retest reliability, and validity[45,46]. In addition, the tool should have acceptable readability, response format, completion time, and be easy to interpret[46]. The Ages and Stages-Social Emotional questionnaire (ASQ-SE), the Brief Infant Toddler Social Emotional Assessment (BITSEA), and the Child Behaviour Checklist (CBCL) are tools designed to screen for SEB difficulties among children[47,48]. The ASQ-SE is being used in NZ as a pre and post measure for the Ministry of Education Incredible Years Toddler programme pilot evaluation (personal communication, Dr Denise Guy). The CBCL is too long for implementing as a universal screening tool, and as shown in Table 3.1, all three tools cost to purchase from the developer, so are not suitable for a universal screening tool[49-51].

Table 3.1: Tools for screening for social, emotional, and behavioural problems including adverse childhood experiences, among children aged 0-5 years.

	Number of items	Age group	Administration time	Cost
Ages and Stages -Social Emotional[49]	19-33 items	6-60 months	10-15 minutes	Proprietary
Brief Infant Toddler Social Emotional Assessment[50]	42 items	12-36 months	7-10 minutes	Proprietary
Child Behaviour Checklist[51]	99-items	1.5-5 years	15-20 minutes	Proprietary
Child Youth Wellness ACE Questionnaire[7]	17 items	0-12 years	5 minutes	Free
Strengths and Difficulties Questionnaire[8,13]	25 items	2-4 years 4 -16 years	10 minutes	Free

As discussed in Section 3.1, the SDQ is used in NZ as a universal screening tool for children aged 4 years[8]. The questionnaire is reliable, comprehensive, and appropriate for use in NZ[1]. The SDQ for 3-4 year olds is the pre-school SDQ, and 4-16 year olds use a school age SDQ[13]. A version of the SDQ adapted for children aged 2 years has been used in a study of NZ children, although needs validation[14]. There are also parent and teacher versions of the SDQs are available[8]. This report will discuss the SDQ and no other SEB screening tools, as the SDQ is currently used for universal screening, is freely available, and has been found to be acceptable.

Currently in NZ there is no ACE questionnaire used for screening children aged 0-5 years. The Child Youth and Wellness (CYW) Centre in the United States (US) developed the ACE-Questionnaire (ACE-Q) to use as a screening tool in primary health care and are validating the screening tool[7]. The ACE-Q includes the original ten ACEs (Section 3.3.1) and a separate seven ACEs relevant to the community, for example: was your child ever in foster care[52]. In addition, a stress related symptom checklist is completed with the primary health provider[52].

3.4.1 What is the reported accuracy of the identified screening instruments?

Sensitivity and specificity levels of 70% to 80% have been deemed acceptable for developmental screening tests[53]. The SDQ has an approximate sensitivity of 63% and specificity of 94%[54] among 4-16 year olds, and agreement between the SDQ result and clinical judgement was highly significant[55]. The SDQ identifies more false positives than false negatives and over 70% of those with difficulties were identified[54,55]. There are very few studies looking at sensitivity and specificity among 3-4 year olds, however one found that the SDQ has acceptable reliability and validity among children aged 3-4 years[56].

A validity study on the SDQ in NZ showed that the internal consistency of the subscales was low, possibly due to ethnicity and cultural differences, parent's difficulties understanding the questions, and the context in which to answer the questions[57,58]. A conversion table, as suggested by Kersten et al. (2018), may help to account for score bias by ethnicity group, and therefore improve internal consistency[58].The SDQ uses a scale that is subjective to each person filling it out[59]. Parents that have a low understanding of normal development and social norms, or have cultural differences, may identify their child as having difficulties when they do not have any[60] and parents with depression or anxiety may experience their child as more difficult[61], highlighting the need for face to face support from providers of the SDQ[57].

The CYW ACE-Q was found to have validity and acceptability in the primary health care setting in San Francisco, US, although needs further evaluation on reliability[7,52]. An evaluation of the reliability, validity, and acceptability of an ACE screening tool needs to be conducted in the NZ population.

3.4.2 How is the screening instrument administered?

In NZ, the pre-school SDQ is administered as a part of the Well Child Tamariki Ora B4 school check, carried out by a registered nurse or other health care provider when the child is 4 years old[8]. A pre-school or other teacher will also be asked to complete an SDQ-T[8]. The parents are given the SDQ to take the home, complete, and return, or given the option to complete the form with the help of the provider[8].

The SDQ provider scores the SDQ as 0-2 for 'not true', somewhat true', and 'certainly true'[8]. The scores are calculated for each subscale, then all subscales except the pro-social scale are combined to create a total difficulties score[8]. A scoring sheet indicates which scores are normal, borderline, or concerning in the general population[8]. Currently, British threshold values are used for scoring, although they may be

too high for the NZ population, which would cause under identification of children with problems[57,62]. Further research may need to be done to consider different thresholds specific to the NZ population[57].

An ACE-Q screening tool could also be administered as a part of Well Child checks. For the CYW ACE-Q, a parent states to the provider or fills in the number of ACEs that apply to their child on a form. To create a total ACE score for referral, the provider of the ACE-Q combines the number of ACEs from the original ten ACEs, and from the second section. As discussed in section 3.4., the parent is interviewed to identify the presence or absence of stress related symptoms[52]. Other services may choose different approaches to collecting the ACE score, which is an area requiring further research.

3.4.3 What costs (if any) are associated with each identified screening instrument?

Completing the SDQ and ACE-Q have minimal demands on time and resources[5,52] and are freely available[13,52].

3.4.4 When is the optimal time (or times) to conduct the screening test?

Infant development can be compromised in the early weeks and months of life[4,16,21]. The current screening at 4 years of age is too late. In a review for the Ministry of Education, Church (2003) summarised that interventions for antisocial behaviour were less effective among school age children than pre-school children[63]. CYW ACE-Q screening begins at nine months of age, 24 months, then each year until the child is 19 years old[52]. In NZ, it may be advantageous to follow the CYW model and screen for SEB difficulties and ACEs throughout infancy and early childhood in line with Well Child checks, to ensure difficulties are addressed as early as possible. Screening among children under 2 years could be done with the ACE-Q as ACEs can lead to SEB problems, or despite cost, other tools such as the BITSEA or ASQ-SE are appropriate for children aged 6 months to 2 years[49,50].

3.4 Summary

The SDQ

- ***The SDQ is a valid, accurate, acceptable, and free tool used for universal screening of 4 year old children as a part of the Well Child Tamariki Ora B4 School check.***
- ***A study in NZ showed that internal consistency of the subscales was low, possibly due to ethnic differences and parents having difficulty understanding the SDQ questions and their context.***
- ***Well Child Tamariki Ora provide the parents, and teachers, with the SDQ, which they can complete with the providers or at home.***
- ***The provider scores the SDQ and a sheet indicates if the child's scores are normal, borderline, or concerning.***
- ***Screening for SEB problems at 4 years is too late.***

The ACE-Q

- ***No ACE tools have been developed for use in NZ.***
- ***The ACE-Q, a multiple section tool, was developed and validated in the US for use as a screening tool by the CYW Centre.***
- ***ACE-Q section one – 10 ACEs developed by Felitti, section two – seven ACEs relevant to the community. Child symptoms are recorded.***
- ***ACE-Q screens children aged 9 months and continuing periodically to 19 years.***

3.5 What assessment(s) should follow positive screening for ACEs, and/or social, emotional and behavioural problems?

The SDQ is not a diagnostic tool[1]. Referral processes for further assessment need to be in place, as well as effective interventions[1]. In NZ, children with a concerning total score on the SDQ should be referred to either infant and early childhood mental health (IECMH) services or to NGO intervention programmes[8]. With limited IECMH services children are more likely to be referred to community based programmes. Children with a borderline score on the total SDQ or children with a concerning subscale score may also be referred to home visiting and parenting programmes[8]. The decision on where the child is referred depends on the availability of services, and on the preference of family and whānau who attend with the child[1].

The ACE-Q score and the child's symptoms determines if a child needs intervention in the CYW screening model. If a child has 1-3 ACEs with no symptoms, they are not referred for specialty intervention, however their parents are asked to monitor symptoms[52]. If symptoms arise, the parents could notify the Well Child Tamariki Ora provider or the child's doctor. If the child has 1-3 ACES with symptoms, or 4 or more ACES, they are referred for assessment and intervention[52].

3.5 Summary

- ***Screening should provide a pathway for interventions.***
- ***Concerning total SDQ score - referral to IECMH services or non-government organisation intervention programmes.***
- ***Borderline total SDQ score or concerning subscale score - possible referral to home visiting programmes or community based programmes***
- ***1-3 ACEs with no symptoms - monitored by parents***
- ***1-3 ACEs with symptoms - referred to interventions***
- ***4 or more ACEs - referred to interventions***

3.6 What interventions or additional support are effective following early detection?

Screening for SEB problems and current number of ACEs could provide a pathway between primary care providers and interventions for children and their family. There are three tiers of interventions in NZ: universal care (Tier 1) including Well Child Tamariki Ora, targeted preventive care (Tier 2) including non-government organisations (NGOs) and Early Intervention services, and intensive specialty care (Tier 3) including infant and early childhood mental health (IECMH) services[64,65]. However, interventions can sit across multiple tiers.

Improving the parent-infant relationship is central to early intervention with SEB problems and moderating the effects of ACES[66,67]. Socioeconomic factors and household adversity also need to be addressed for children with ACEs[68]. Individual interventions are uncommon in this age group. The following interventions and programmes are a sample of what has been found effective in improving parental sensitivity and responsiveness and reducing SEB problems.

Home visiting are Tier 2 programmes that aim to address issues such as children's behaviour, cognitive and language development and parenting[69]. Family Start is an example of a home visiting programme for families of children aged 0-5 years that offers the most intensive support for families with adversity in NZ[9]. Family Start has shown reduced infant mortality, increased utilisation of health services and early education, and increased utilisation of addiction services for mothers[9,69], while the Early Start programme has shown reduced behaviour problems at age 3 years[70]. Further research is needed to investigate long term results.

Parenting Programmes are educational programmes offered across Tier II and III, and include Incredible Years Parenting programmes (IY), Circle of Security-Parenting, Triple P Positive Parenting Programmes and Mellow Parenting. IY has programmes for parents of children from 0-12 years, and improves SEB difficulties for children, and is recommended for children with conduct problems[10]. The Early Intervention Foundation (EIF) found that the Incredible Years programmes for children aged 3-6 years had evidence from more than one study of a positive impact (rating 4+), while the programme for toddlers needs more research[71]. There is also evidence of improvement in parental wellbeing and behaviour[11,72-74]. There is some evidence that parenting programmes are effective among children under 3 years old[75], although more research is needed on long term effects.

Infants and young children with a high total SDQ score, subscale, or ACE score should be indicated for specific IECMH services. These children need referral to services providing a comprehensive assessment with attention to observations of the parent-child relationship, and interventions directly focused on improving the relationship. Examples of Tier 3 interventions include Circle of Security-Intervention, Watch, Wait and Wonder, Video Feedback to Promote Positive Parenting, Video Interaction Guidance, and Parent Child Interaction Therapy (PCIT). PCIT is an empirically validated intervention that is effective at reducing behavioural problems for children from 3 years[76-79]. Watch, Wait and Wonder (EIF 2+, positive outcome from one quality study) focuses on parental sensitivity and attachment to improve child emotional problems such as disorganised attachment among 0-4 year olds[71,80,81]. These interventions can be offered in a community setting but often without the comprehensive assessment.

While the interventions discussed are available in some areas of NZ, there are improvements needed in the provision of IECMHS and intervention programmes. Comprehensive perinatal and infant mental health services for complex, 'high risk' caregivers are rare in NZ. Infants and young children at clear risk of adverse mental and physical health outcomes need to receive appropriate consultation and management. Additionally, services need appropriately trained and supervised providers that can connect and support families. The Facilitating Attuned Interaction (FAN) approach[82] is a conceptual model and practical tool for practitioners to build relationships and develop reflective practice. Providers in NZ, including those working for Plunket, Well Child Tamariki Ora, and home visiting programmes are positive about FAN. FAN has had good uptake, and is successful in reducing parental stress, increasing parent satisfaction and provider confidence and reducing provider burnout.

3.6 Summary

- ***Improving the parent-child relationship is key to moderating SEB difficulties and ACEs.***
- ***Home visiting programmes for families of children aged 0-5 have shown reduced infant mortality, increased use of health services, and improved behaviour problems.***
- ***Parenting programmes, such as Incredible Years programmes, improve SEB difficulties and parent wellbeing and behaviour.***
- ***There are limited IECMH services in New Zealand.***

3.7 Are there any known harms from screening for Adverse Childhood Experiences and/or social, emotional, and behavioural problems?

There are no identified harms from the SDQ or ACE-Q screening tools themselves. However, there are barriers that could prevent children from being screened, or prevent children and families from receiving necessary interventions. Parents have reported difficulties understanding the purpose of the SDQ, the context of the questions, and it can raise anxieties about their child[8,57]. Some parents have a problem with the sexual abuse and violence questions in the ACE-Q, even though parents do not need to state which ACEs their child has, just the total number of ACEs[7]. Training health care providers to discuss the purpose of the screening tools and provide assistance as the parents complete the questionnaires helps parents understand the value of screening[8,57]. If parents and teachers choose to complete the questionnaires at home, an online questionnaire with automated reminders and help boxes could be developed to help parents understand the questions from home.

Screening will identify children that require further assessment and intervention, however, there are resource difficulties, a limited skilled workforce, and a lack of services for providing appropriate interventions. Furthermore, resources will be unnecessarily limited when false positives are referred to interventions. IECMH services are scarce in NZ, with only two full time services, both in Auckland, and only three part-time services available in either Auckland, Waikato, or Canterbury[64]. While NGO and community programmes are more widespread, they are not available everywhere, with fewer interventions available outside main cities. Online parenting programmes could be investigated to reach families in rural areas, however more research into their efficacy is needed[83].

Infants, young children, and their families are potentially harmed when difficulties are identified but no intervention is offered or available. Difficulties may persist with increasing impairment until a service is available at an older age. Integrated approaches are needed to map services, provide early childhood interventions, address workforce concerns, and have clear pathways from screening to intervention to ensure children that have a concerning SDQ and/or ACE score are referred to the appropriate services.

3.7 Summary

- ***Parents reported trouble understanding the SDQ questions and their context.***
- ***There are limited IECMH services and NGO and community programmes in NZ. Some children with difficulties, and their families, may not receive interventions.***
- ***There is no clear pathway for referral between screening and interventions.***

3.8 What do we know from a Māori and Pacific knowledge basis about screening in this domain?

Māori children aged 3-14 years are approximately 1.79 times more likely to have a concerning total SDQ score than non-Māori children[1]. Pacific children aged 3-14 years had a higher proportion of concerning total SDQ scores compared to non-Pacific children, although the difference was not statistically significant[1]. Additionally, children with mothers whose prioritised ethnicity was Māori or Pacific were more likely to have persistent difficulties from age 2 to age 4 than children with non-Māori or non-Pacific parents[4]. However, these rates may be an underestimate as Māori and Pacific children were 1.6 to 1.7 times more likely to not complete the B4 school checks, which includes the SDQ, than non-Māori and non-Pacific children respectively[84]. Additionally, Kersten et al. (2017), found that the threshold

values for concerning scores may be set too high for Māori children, therefore some children with problems may not be classified as concerning from the SDQ results[62].

A 2014 review of the SDQ found that some parents from Māori, Pacific, Asian, and new immigrant backgrounds thought that the SDQ did not consider cultural differences[57], which may be the reason for poor completion of B4 school checks. To ease language barriers and improve cultural appropriateness, different language SDQs are available including a Te Reo Māori version, and a Samoan version is being created[85]. Some Māori and Pacific parents commented that they would prefer a discussion with the provider rather than completing the questionnaire themselves[86]. The ACE-Q has a second section for questions on adversity that is common among the community. If ACE screening is established in NZ, the second section provides an opportunity to ensure the screening considers children in a Māori and Pacific cultural context.

As Māori and Pacific children are disproportionately represented among children with concerning total SDQ scores, DHBs with high populations of Māori and Pacific children need to have adequate, culturally appropriate, resources for interventions. Hoki te Rito is the kaupapa Māori Mellow Toddler programme and with Mellow Bumps has been found to be culturally acceptable, effective, and an appropriate service for Māori families[87]. Incredible Years Parenting Basic for children aged 3-7 years is also effective for reducing SEB difficulties among Māori and Pacific children, and their families and whānau reported that they were satisfied with the programme[72].

3.8 Summary

- ***Māori and Pacific children have higher rates of SEB difficulties than non-Māori and non-Pacific children respectively***
- ***Some parents from Māori, Pacific, Asian, and new immigrant backgrounds thought that the SDQ did not consider cultural differences***
- ***Mellow Toddler and Incredible Years Parenting are effective and culturally acceptable interventions for Māori and Pacific families.***

3.9 Recommendations for further action

Policy and practice

- We recommend that children are screened for SEB difficulties and ACEs multiple times throughout infancy and early childhood, beginning earlier than 4 years old. The screening could coincide with Well Child checks.
- Consider changing the SDQ scoring thresholds to ones more appropriate for the NZ population.
- Improve access and cultural acceptability of screening for Māori and Pacific children.
- Health care providers offering different language tools may help parents understand the purpose of screening and feel supported.
- Face to face assistance and support for parents completing the SDQ or ACE-Q may improve difficulties understanding the questions and their context.
- Intervention providers need to be trained to engage appropriately and support parents. The FAN approach will help with this.
- Developing an online version of the SDQ with automatic reminders and information boxes may help some parents to complete the SDQ and reduce missing responses.
- New Zealand needs increased IECMH services and appropriate NGO programmes available in all regions to ensure all children that need help will receive treatment. These services need to be culturally acceptable for Māori and Pacific families.
- There needs to be an established and clear pathway from screening to interventions.

Further research

- Validation of the SDQ for 2 year old children.
- Identification of an appropriate universal screening tool that can be used for children under 2 years old.
- Research is needed to identify prevalence of SEB difficulties for children under 2 years, and for ACEs among children aged 0-5 years in New Zealand.
- More research is needed for programmes aiming at children aged 0-3 years.
- Research is needed to identify the outcomes for children with ACEs after intervention.
- An ACE screening tool based on the CYW ACE-Q needs to be studied for validity, reliability, and acceptability among New Zealand children. A second section with questions tailored to the New Zealand population should be culturally appropriate.

3.10 Graded evaluations

Table 3.2: Graded evaluation of screening tools and associated recommendations for policy and practice.

Screening tool	Grade	Estimated net benefit	Level of certainty	Recommendation
SDQ: 4-5 years	B	Moderate	Moderate-High	Should be used as a universal screening tool for all children aged 4-5 years.
SDQ: 3-4 years	B	Moderate	Moderate	Should be used as a universal screening tool for all children aged 3-4 years.
SDQ: 2-3 years	C	Small	Moderate	Has adequate factor structure and reliability but needs further validation. Should be offered for selected children of concern aged 2-3 years.
ACE-Q	C	Small	Moderate	Has not yet been validated, but captures childhood adversity. Interventions that promote resilience including parent-child relationship and parenting capacity are available, although outcomes in children with ACEs have not been assessed.

Grade: A, B, C, D, or I.
Estimated net benefit: substantial, moderate, small, nil or harmful, or insufficient (evidence).
Level of certainty: high, moderate, or low
For more detailed explanation see Supplementary Information - Grade definitions and levels of certainty.

Table 3.3: Graded evaluation of interventions and associated recommendations for policy and practice.

Intervention	Grade	Estimated net benefit	Level of certainty	Recommendation
Home visiting: Family Start	C	Moderate	Low	Should be provided to families of all children who need it.
Home visiting: Early Start	B	Moderate	Moderate	Should be provided to families of all children who need it.
Group-based: Incredible Years (3-6)	A	Moderate	High	Should be provided for families of all children 3-6 years and above who need it.
Group-based: Incredible Years - Toddler	C	Small	Moderate	Could be provided to families of all children aged 1-3 years who need it. Needs more research for social and emotional problems.
Group-based: Mellow Parenting	C	Moderate	Low-Moderate	Should be provided to families of all children who need it. Hoki te Rito, the kaupapa Māori Mellow Toddler programme, has been found to be culturally acceptable.
Dyadic: Parent Child Interaction Therapy	A	Moderate	Moderate	Should be provided for families of all children 3 years and above with behavioural difficulties.
Dyadic: Watch, Wait, Wonder	C	Moderate	Low-Moderate	Could be provided for children aged 0-3 years with disorganised attachment. Improves social, emotional, and cognitive problems. Needs more research.

Grade: A, B, C, D, or I.
Estimated net benefit: substantial, moderate, small, nil or harmful, or insufficient (evidence).
Level of certainty: high, moderate, or low.
For more detailed explanation see Supplementary Information - Grade definitions and levels of certainty.

3.10 Summary

- ***The SDQ was examined for screening social, emotional, and behavioural problems as it is currently used for universal screening in New Zealand.***
- ***While there are many tools available for screening for adverse childhood experiences, only the ACE-Q, was appraised in this review.***
- ***Screening using the SDQ tools should continue in primary care settings in NZ to support decision-making for further assessment and intervention [grade B]. The SDQ has low acceptability among Māori and Pacific parents and there is no tool for children under 2 years.***
- ***An SDQ is available but has not been validated among children aged 2-3 years [grade C].***
- ***Screening with the ACE-Q is promising, but has not yet been validated [grade C].***
- ***Home visiting programmes such as Family Start [grade C], and Early Start [grade B] have shown reduced infant mortality and increased use of health services, and improved behaviour problems, respectively. Both need more research for long term outcomes and for children under 3 years.***
- ***Group-based programmes, such as Incredible Years (3-6 years) [grade A] and Mellow Parenting [grade C] improve SEB difficulties and parent wellbeing and behaviour. Hoki te Rito, the kaupapa Māori Mellow Toddler programme, has been found to be culturally acceptable, although like Incredible Years Toddler [grade C], needs evidence from more high quality studies.***
- ***Programmes for the child and parent (dyadic) include PCIT [grade A] and Watch, Wait, Wonder [grade C]. PCIT has empirical evidence that it improves behavioural difficulties. Watch, Wait, Wonder only has evidence from one quality study showing improved social, emotional, and cognitive improvements.***

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Appendix 1 - Search history

Scopus

Social emotional behavioural problems: 1,383

(TITLE-ABS-KEY (*"social emotional behavioural problems"* OR *"social emotional behavioural difficulties"* OR *"infant mental health"* OR *"early childhood mental health"*)
AND
(TITLE-ABS-KEY (*"child"* OR *"children"* OR *"infant"* OR *"preschool"* OR *"pre-school"* OR *"paediatric"*)
AND PUBYEAR > *1989* (LIMIT-TO (LANGUAGE , *"English"*))
Other addition: 260
AND (TITLE-ABS-KEY (screening OR questionnaires)

ACEs: 486

((TITLE-ABS-KEY (*"adverse childhood experiences"*)
AND
(TITLE-ABS-KEY (*"child"* OR *"children"* OR *"infant"* OR *"preschool"* OR *"pre school"* OR *"paediatric"*))
AND
(TITLE-ABS-KEY (*screening* OR *questionnaires*))
AND PUBYEAR > *1989* (LIMIT-TO (LANGUAGE , *"English"*))

Cochrane reviews

Social emotional behavioural problems: 17

Title-Abs-Key (social emotional behavioural problems AND ("infant" or "child" or "pre-school"))
AND PUBYEAR > 1989

NCBI – PubMed

Social emotional behavioural problems:

- mental health; child; infant; social emotional behavioural problems (filters 1990-2019, humans, English, child: birth to 18, infant) – **62**
- strengths and difficulties questionnaire (filters 1990-2019, humans, English, child: birth to 18, infant) – **2018**
- strengths and difficulties questionnaire New Zealand (filters 1990-2019, humans, English, child: birth to 18, infant) – **45**

ACEs:

- Adverse Childhood Experiences, child abuse (filters 1990-2019, humans, English, child: birth to 18, infant) – **815**
- Adverse Childhood Experiences, child abuse, health (filters 1990-2019, humans, English, child: birth to 18, infant) – **577**
- Adverse Childhood Experiences, health status child abuse (filters 1990-2019, humans, English) – **172**
- adverse childhood experiences questionnaire (filters 1990-2019, humans, English, child: birth to 18, infant) – **604**

Medline/Ovid

Social emotional behavioural problems:

▼ Search History (13) View

# ▲	Searches	Results	Type	Actions	Annotations
1	emotional problems.mp.	3786	Advanced	Display Results | More	
2	Social Problems/	7992	Advanced	Display Results | More	
3	behavioural problems.mp.	2299	Advanced	Display Results | More	
4	1 or 2 or 3	13952	Advanced	Display Results | More	
5	Infant/	768920	Advanced	Display Results | More	
6	Child/	1634864	Advanced	Display Results | More	
7	Child, Preschool/	889833	Advanced	Display Results | More	
8	5 or 6 or 7	2082644	Advanced	Display Results | More	
9	Mass Screening/	99224	Advanced	Display Results | More	
10	5 and 7	463984	Advanced	Display Results | More	
11	New Zealand/	37763	Advanced	Display Results | More	
12	4 and 8 and 9	80	Advanced	Display Results | More	
13	11 and 12	2	Advanced	Display Results | More	

ACEs:

# ▲	Searches	ults	Type	Actions	Annotations
1	Child/	864	Advanced	Display Results | More	
2	Infant/	920	Advanced	Display Results | More	
3	Child, Preschool/	833	Advanced	Display Results | More	
4	1 or 2 or 3	644	Advanced	Display Results | More	
5	Adverse Childhood Experiences/	283	Advanced	Display Results | More	
6	4 and 5	158	Advanced	Display Results | More	
7	limit 6 to (english language and humans and yr="1990 -Current")	155	Advanced	Display Results | More	

Grey literature sources

- Ages and Stages Questionnaire, website.
- Brief Infant and Toddler Social Emotional Assessment, website.
- Centre for Youth and Wellness, website.
- Dr Denise Guy, personal communication and a presentation on infant mental health interventions.
- Early Intervention Foundation, UK, website.
- Google Scholar, search engine.
- Ministry of Health, New Zealand, website.
- Ministry of Social Development, New Zealand, website.
- National Institute of Clinical Excellence (NICE), London UK, website.
- National Scientific Council on the Developing Child, Harvard University, website.
- Oranga Tamariki – Ministry for Children, New Zealand, website.
- The Families Commission, New Zealand, website.

- Well Child Tamariki Ora Programme, New Zealand, website.
- Youth in Mind, website for researchers and professionals about the SDQ.

Supplementary Information - Grade definitions and levels of certainty

Table S1. Grade definitions for screening tools and interventions

Adapted with permission from the U.S. Preventive Services Task Force 2012.[i]

Grade	Definition	Recommendation for policy and practice
A	• The authors recommend this screening tool/intervention. • There is high certainty that the net benefit is substantial.	• This screening tool/intervention should be offered or provided.
B	• The authors recommend the screening tool/intervention. • There is high certainty that the net benefit is moderate, or there is moderate certainty that the net benefit is moderate to substantial.	• This screening tool/intervention should be offered or provided.
C	• The authors recommend selectively offering or providing this screening tool/intervention to patients based on professional judgment and patient preferences. • There is at least moderate certainty that the net benefit is small.	• This screening tool/intervention should be provided for selected patients depending on individual circumstances.
D	• The authors recommend against this screening tool/intervention. • There is moderate or high certainty that the screening tool/ intervention has no net benefit or that the harms outweigh the benefits.	• The authors discourage the use of this screening tool/intervention.
I	• The authors conclude that the current evidence is insufficient to assess the balance of benefits and harms of the screening tool/intervention. • Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	• If the screening tool/intervention is offered, patients should understand the uncertainty about the balance of benefits and harms.

Table S2. Levels of certainty regarding net benefit

Adapted with permission from the U.S. Preventive Services Task Force 2012 [1].

Level Of Certainty	Description
High	• The available evidence usually includes consistent results from well-designed, well-conducted studies in representative populations. • These studies assess the effects of the preventive service on health outcomes. • This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	• The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as: – the number, size, or quality of individual studies; – inconsistency of findings across studies; – limited generalizability of findings to routine practice; – lack of coherence in the chain of evidence. • As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion(s).
Low	• The available evidence is insufficient to assess effects on health outcomes, because of: – the limited number and/or size of studies; – important flaws in study design and/or methods; – inconsistency of findings across individual studies; – gaps in the chain of evidence; – findings not generalizable to routine practice; – lack of information on important health outcomes. • More information may allow estimation of effects on health outcomes.

[i] https://www.uspreventiveservicestaskforce.org/Page/Name/grade-definitions